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THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

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66 PORTLAND PLACE LONDON W1 TELEPHONE: LANGHAM 5721-7 TELEGRAMS: RIBAZO WESDO LONDON

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Bicentenary of the Birth of Sir John Soane

The Council have decided to place a laurel wreath at the Chantrey bust of Sir John Soane whose bicentenary occurs on 10 September. The bust is in Sir John Soane's Museum, Lincoln's Inn Fields.

Town Planning in the Colonies

Since February a Colonial Housing and Town Planning Advisory Panel has been in existence under the aegis of the Colonial Office. In addition to Sir William Holford [*F*] who has been Honorary Town Planning Adviser to the Secretary of State for the Colonies since 1947, and Mr. G. Anthony Atkinson [*A*] of the Building Research Station, the following are members of the Panel: the Hon. Lionel Brett [*A*], Professor R. J. Gardner-Medwin [*F*], Sir George Pepler [*Hon. A*], Mr. Desmond Heap, Comptroller and City Solicitor to the City of London, and Sir John Wrigley, until recently Joint Deputy Secretary, Ministry of Housing and Local Government.

The Secretary of State for the Colonies did not lay down any specific terms of reference but left the field of the Panel's work to the initiative of Sir William Holford and Mr. Atkinson. So far the Panel have considered planning and housing in Malaya and housing policy in the African territories; planning and housing officers from Malaya and the Gold Coast were present at the meetings.

The Late Sir Banister Fletcher

We regret to record, as we go to press, the death of Sir Banister Fletcher, President 1929–31.

International Union of Architects Exhibition

The Institute has just completed, for the U.K. Committee of the International Union of Architects, a revised edition of the 'In Britain Today' Exhibition, which will form the British section of the Union's Travelling Exhibition. This will be shown during the Third Congress of the I.U.A., at Lisbon in September next.

'In Britain Today' illustrates recent work on schools and housing in this country and in addition to sections dealing with national background, building traditions and the need for planning, includes a section illustrating the replanning and rebuilding of war-damaged towns and cities. After being shown at Lisbon, the exhibition will go on tour with the I.U.A. Travelling Exhibition.

The Institute of South African Architects

To mark the first twenty-five years in the life of the Institute of South African Architects, Mr. J. S. Lewis, the Registrar, has written an historical essay which has been published as a special supplement to the SOUTH AFRICAN ARCHITECTURAL RECORD. Like all such bodies, the I.S.A.A. underwent considerable birth pangs. Conflicting interests of the various local autonomous bodies of architects and quantity surveyors had to be reconciled by seeming unending tact and persuasion. The Union Parliament passed in 1927 a Registration Act which, though an emasculated version of the original Bill, was enough to establish architecture and quantity surveying as registered professions. It was effective enough, however, for the R.I.B.A. to ask the advice of the South African Institute, the first body to be state registered in the Commonwealth, when framing the Registration Bill for Great Britain. Registration did not bring an end to problems and these continued to present themselves for solution for a long time afterwards. That they were successfully solved is shown by the fact that the original numbers of 506 architects and 137 quantity surveyors has now grown to well over 1,000 architects and 350 quantity surveyors. Mr. Lewis gracefully acknowledges the help and advice always given freely by the R.I.B.A., particularly in the matter of architectural education which has long been firmly established in the Union of South Africa. Mr. Lewis's scholarly essay is a valuable historical document.

The Home and Surroundings Exhibition

The first copy of the exhibition is now on view at the Heywood Public Library, Heywood, until 10 September. It then goes to the Harris Museum Art Gallery at Preston from 15 September to 1 October.

The second copy will be at the New Art Gallery, Tunbridge Wells, from 2 to 16 September and in the South Eastern Gas Board Showrooms at Maidstone from 21 September to 3 October.

Mr. T. E. Scott's Silver Jubilee

Mr. Thomas E. Scott, C.B.E. [*F*], has completed his twenty-fifth year as Head of the Department of the School of Architecture, Surveying and Building at The Northern Polytechnic. To mark the occasion he was entertained by his staff at Beale's Restaurant, Holloway, on the evening of 9 July, and presented with an inscribed silver salver. Some sixty past and present members of his staff were there to congratulate him.

Lancaster House

The work of restoring Lancaster House to its former condition has recently been completed by the Ministry of Works, who some twelve years ago took a lease of the building with the object of making it suitable for Government hospitality and important international conferences, but the north-west wing was destroyed by bombing in the last war and restoration was not begun until 1950.

The Ministry have rebuilt the shattered wing, replaced the old heating system with modern concealed heating, renewed and improved the electric lighting installation, and made safe the large lantern light over the main staircase as well as other parts of the building which had been shaken by bombing.

The interior has been redecorated as far as possible in conformity with the original style, which was based on that in vogue in France in the time of Louis XV.

Lancaster House was begun in 1825 by Benjamin Wyatt as a residence for Frederick, Duke of York, the second son of George III, but he died two years later and the second Duke of Sutherland then took a long lease. In 1842 the Duke commissioned Sir Robert Smirke to complete the mansion by adding another storey and rooms in the roof for servants. At this time the building was known as Stafford House.

In 1912 the house passed to the then Sir William Lever, who next year assigned his lease to the Commissioners of Works for the use of the London Museum and Government hospitality. The house was now renamed Lancaster House. With the transference of the London Museum to Kensington Palace the building was freed to provide an imposing setting for conferences of high importance and also for Government banquets. It will be recalled that on 5 June Her Majesty the Queen was entertained there by Sir Winston Churchill, the banquet being held in the Long Gallery on the first floor.

The accompanying illustration shows the main staircase, which leads to the ornate state rooms, including the music room where Chopin played before Queen Victoria.

The main staircase of Lancaster House by Benjamin Wyatt which has been restored by the Ministry of Works

Architecture Club

A reception of the Architecture Club was held at Sudbrook Park on Tuesday 28 July by kind permission of the Richmond Golf Club. Members and guests were received by Viscount Esher. A programme of music for the harpsicord and flute was given by Miss Millicent Silver and Mr. John Francis.

Northern Ireland Housing

The Annual Report of the Northern Ireland Housing Trust reveals that in January of this year the Trust had completed 10,000 dwellings, a splendid effort by a body which in January 1945 did not exist. This would have been a considerable achievement by any public body had the houses been in a single scheme, but on the contrary, they are scattered in groups, many consisting of no more than two or three dozen houses, all over Northern Ireland. Moreover each scheme is a finished, well-planned entity with its own roads and services and not a mere scattering of houses along existing roads. At present a further 2,189 houses are under contract and sites have been acquired for 20,793.

During the last year costs have remained reasonably steady, giving the Trust a breathing space in what has been hitherto a continual battle to build to an economic rent (plus the subsidy), the policy of the Trust being to build down to fixed rents. While the urgency to provide more houses remains, greater emphasis is now being placed on the human problems of management and the need to foster a strong social life, specially in the larger estates. The Trust has built a few social centres but the high cost of building these with the consequent high letting charges is a formidable obstacle. So far as the rent collecting side of management is concerned it is notable that arrears are negligible, and since the Trust was formed only £55 has been written off as irrecoverable.

Sixty Years with Batsfords

Our felicitations may be belated but are none the less sincerely offered to Mr. W. Hanneford-Smith [*Hon. A*] who last May completed sixty years of service with B. T. Batsford Ltd. All architects buy Batsford books and many write them, so it is not surprising that Mr. Hanneford-Smith has personal recollections of such men as J. F. Bentley, Sir Ernest George, T. E. Collcutt, J. L. Pearson, G. F. Bodley and Sir Robert Lorimer, to mention a few architects whose names today are history. Among laymen, his acquaintance included Sir W. S. Gilbert, Marconi, Lord Curzon, Lord Leverhulme and John Burns.

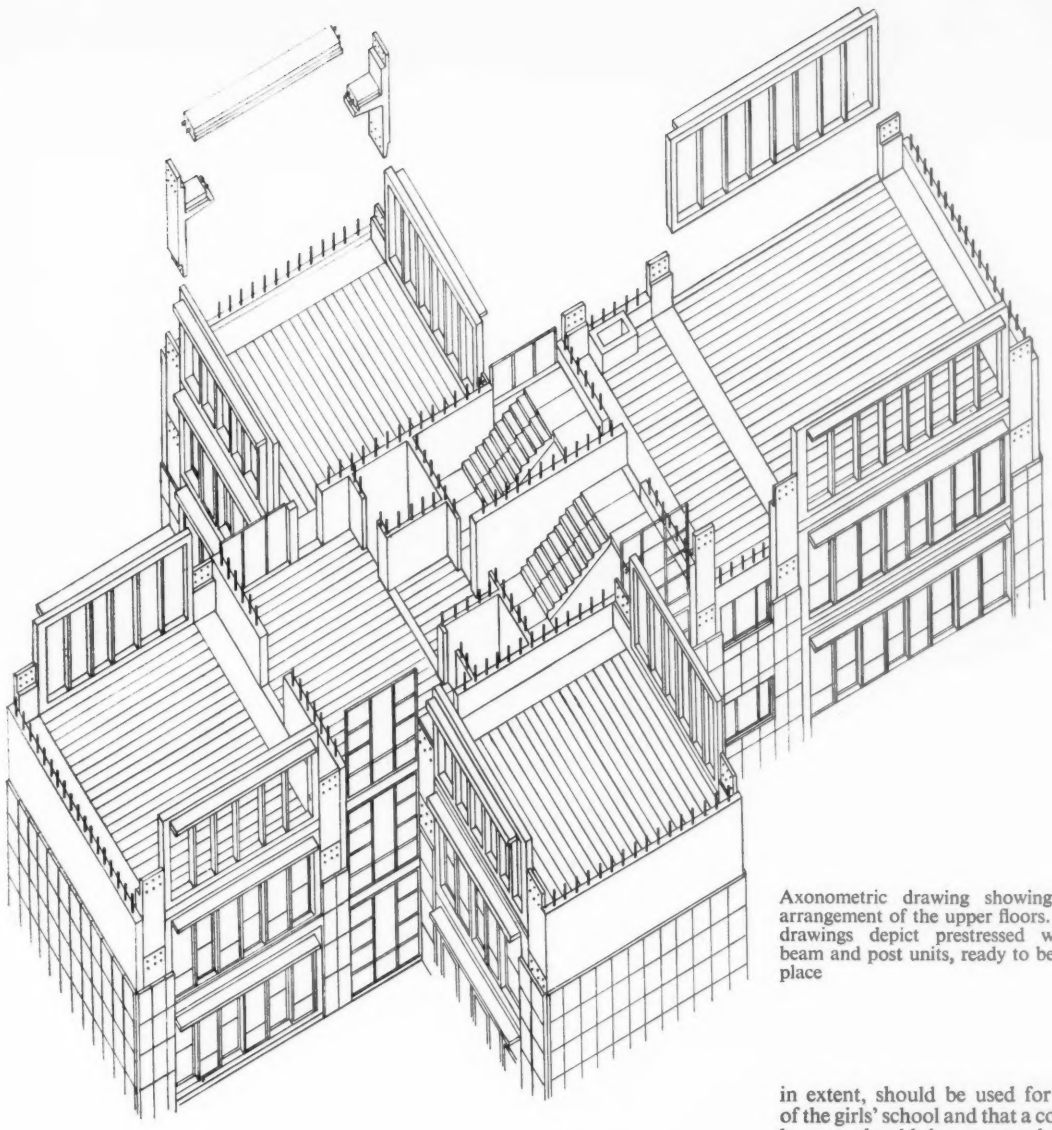
The great reputation enjoyed by the house of Batsford for high-quality book production owes not a little to the scholarly craftsmanship of Mr. Hanneford-Smith. That architects have not been unmindful of this is shown by the fact that as long ago as 1928 the R.I.B.A. elected him an Honorary Associate.

Beginning with attending on customers in the shop, Mr. Hanneford-Smith in due course became a director. Today he retains his seat on the board, but has otherwise retired from active participation in the firm. His fellow directors have presented him with his portrait in oils, by John Bury, in commemoration of his diamond jubilee in publishing.

Buildings of Historical Interest

The Town and Country Planning Act 1947 contains powers regarding the preservation of certain buildings by which the Minister of Housing and Local Government may prepare Provisional Lists of buildings of architectural or historical merit: each list is circulated to interested bodies and after comments or suggestions have been considered a final list is prepared, known as the Statutory List, and this becomes operative.

The complexities of legal phraseology are largely simplified by a booklet published by the Council for British Archaeology in which the relevant sections of the Act are set out, followed by remarks on unsolved difficulties and notes on the action to be taken to save a threatened building. The booklet may be obtained from the Council for British Archaeology, 10 Bolton Gardens, London, S.W.5, price 6d.



Axonometric drawing showing the general arrangement of the upper floors. The detached drawings depict prestressed window, main beam and post units, ready to be dropped into place

Plashet Grove Secondary School for Girls, East Ham

Architect: George Whitby, M.B.E. [*A*].

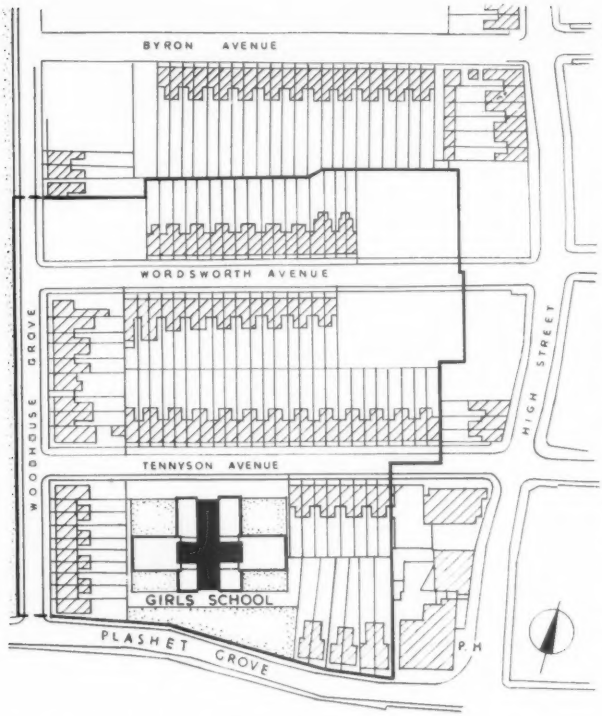
THE PROGRAMME of the East Ham Education Authority includes a secondary school for about 680 girls and another school for a similar number of boys. The site available for these two schools is some twelve acres in extent, bounded by East Ham High Street, Plashet Grove, Woodhouse Grove and the backs of the gardens of Byron Avenue, but it was decided that existing houses must not be touched until the occupants could be given other accommodation, which so far the authorities have been unable to provide. The need for a new secondary school for girls was, however, urgent.

As it happened, bombing during the last war demolished the houses in three places within the area earmarked for the two schools and it was decided that one of these, a site somewhat less than an acre in extent, should be used for the erection of the girls' school and that a comprehensive lay-out should be prepared so that the boys' school would fit into place when circumstances permitted it to be built. This was the problem set before Mr. Whitby to solve.

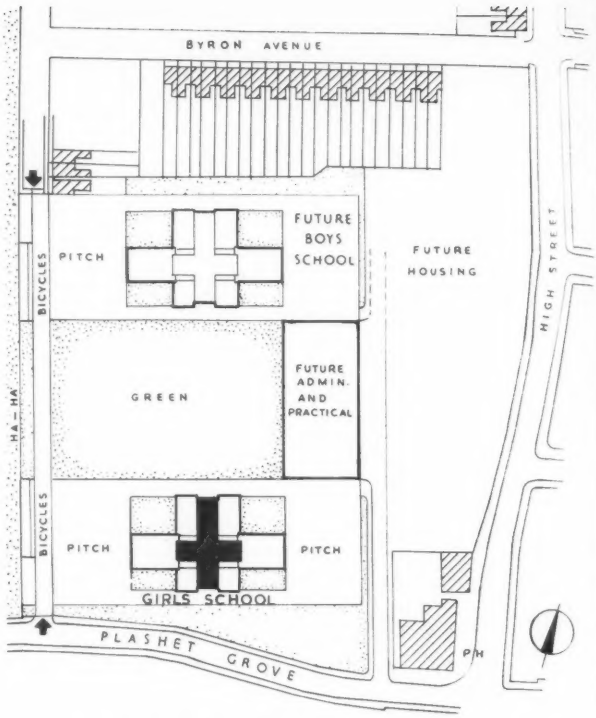
It was at once obvious that to build a school of the required size on a site of less than an acre precluded the use of a spread-out design, even if that were desirable; it must be a compact plan, and examination of the accompanying illustrations will show how this has been achieved.

The basic conception is a cruciform design, with the arms pointing almost exactly to the cardinal points of the compass, comprising basement, ground floor, a mezzanine in the east, west, and southern arms, and six floors above. On the ground floor the east and west arms are extended to provide a gymnasium and assembly hall,

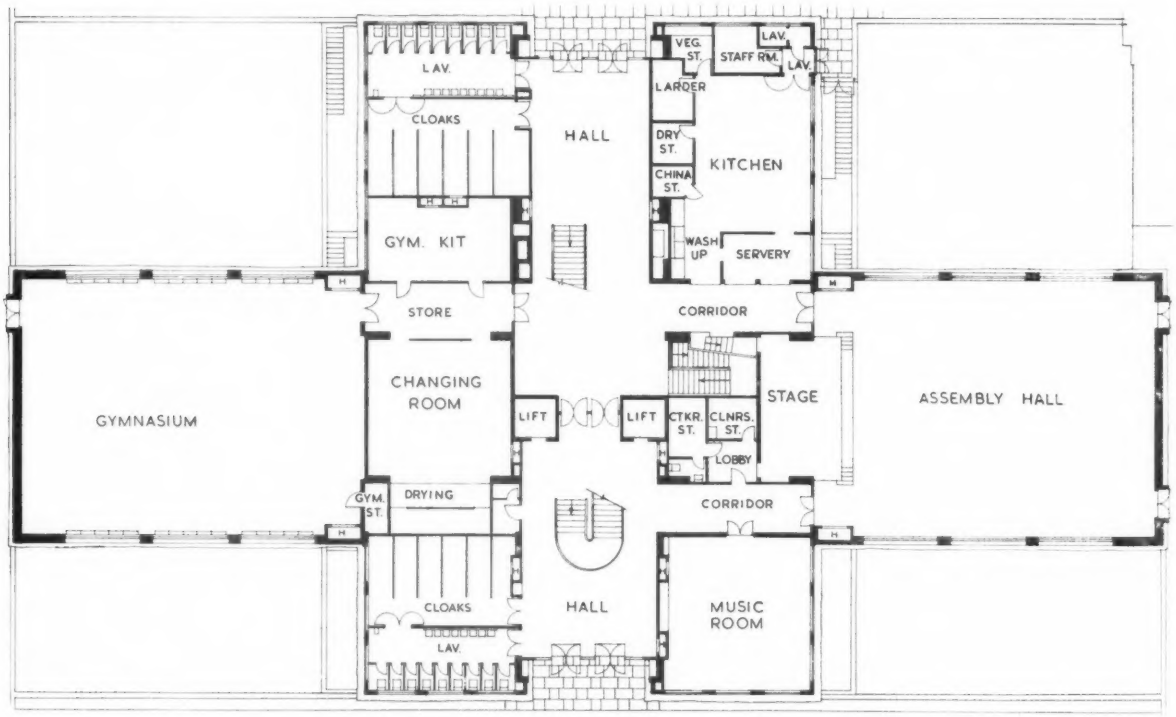
continued on page 400



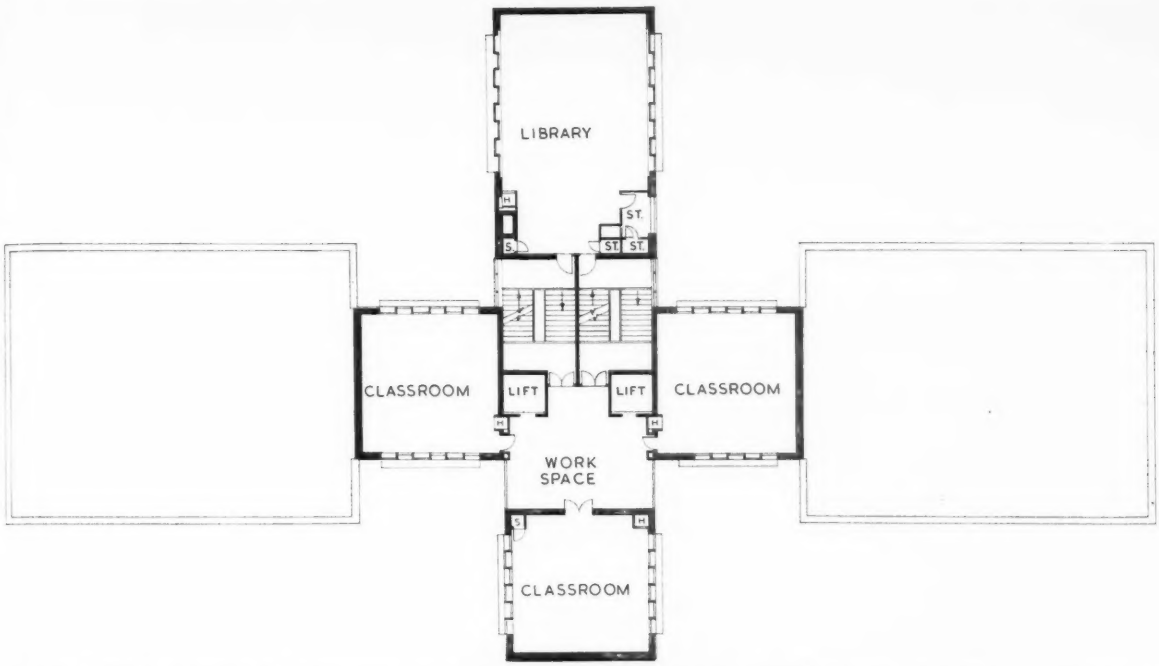
Site plan showing immediate development



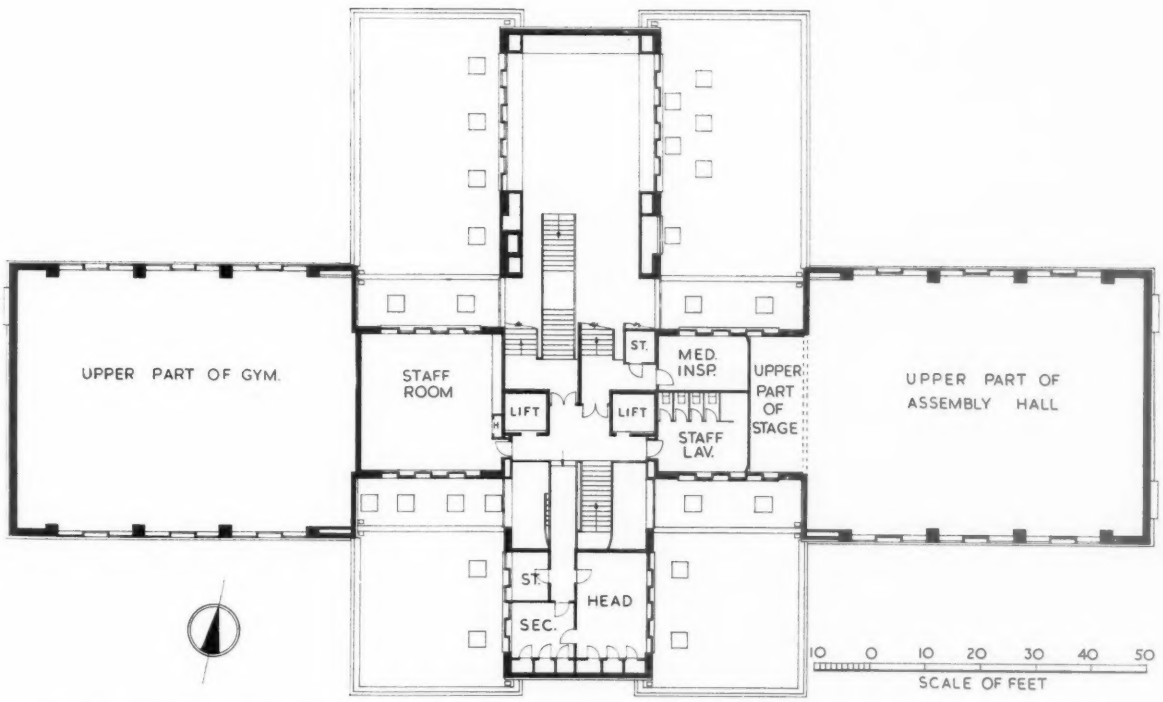
Proposed ultimate development. There is a public park to the west



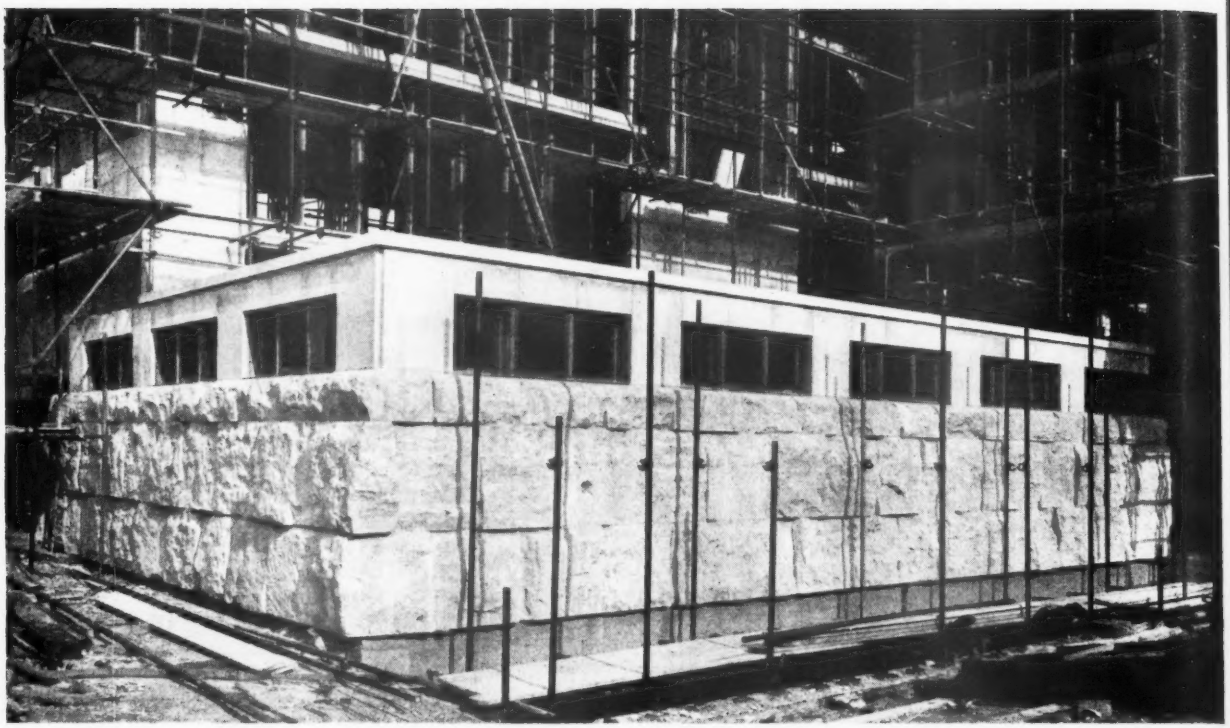
Plan of the ground floor. The assembly hall is used for dining, a trolley system providing food service



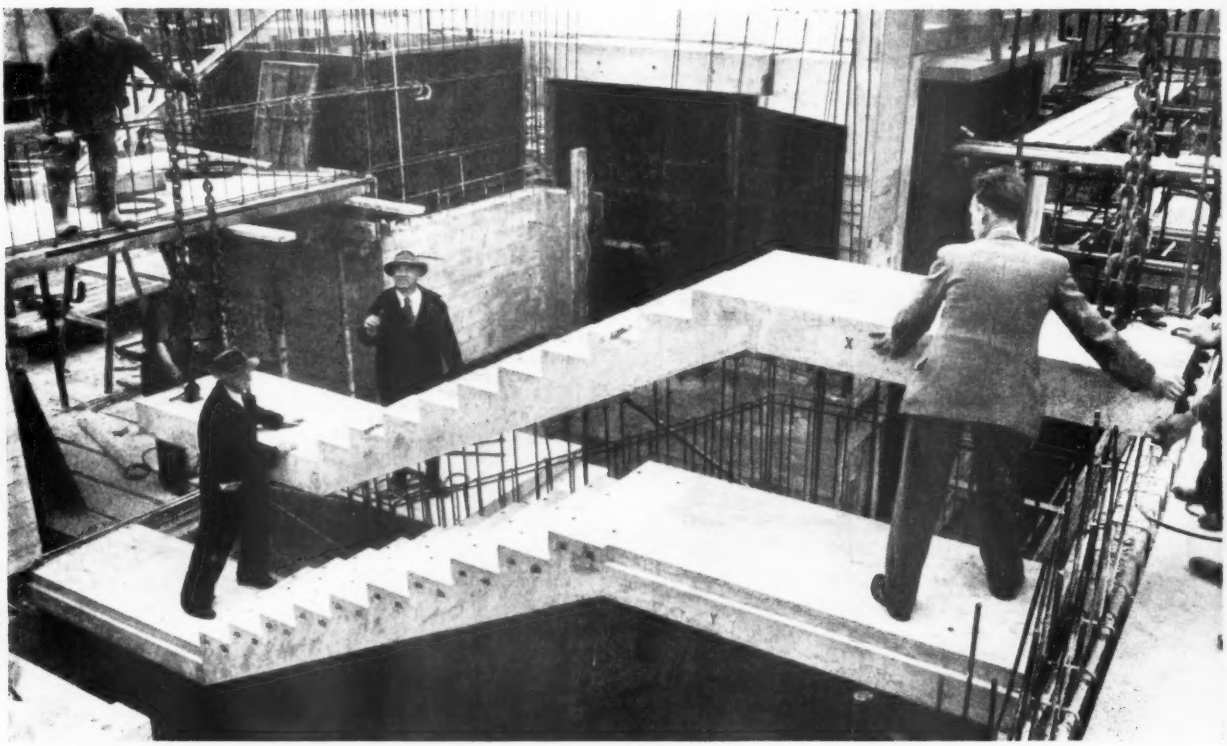
Plan of the first floor, typical of the general lay-out of the upper floors. Each lift will accommodate half a class. The youngest children will use the lowest storey and the eldest the topmost so that, as they get older, children will go 'up the school'



Plan of the mezzanine. A bridge connects the Head's room to the lifts and stairs

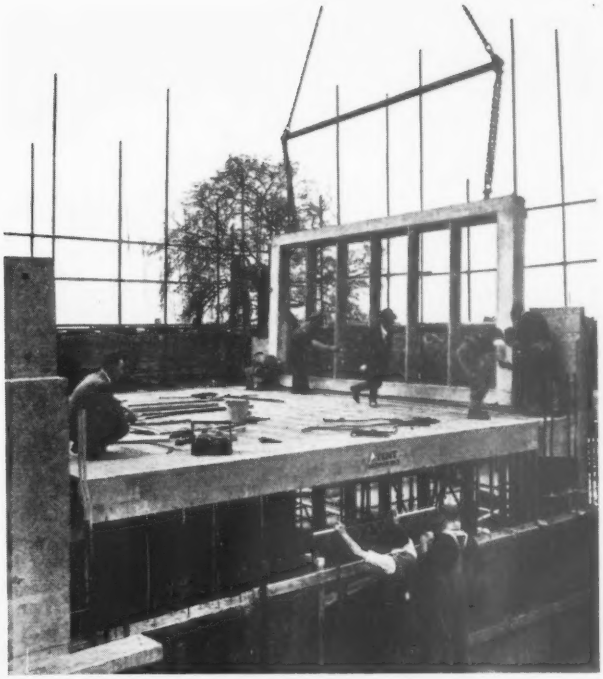


Progress photograph showing the rough-faced stonework to lower part and the sawn-faced stonework above

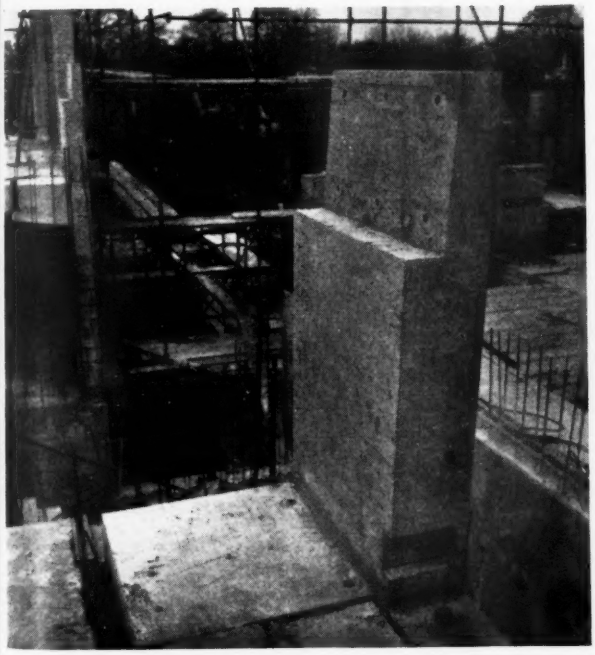


A flight of precast concrete stairs being lowered into position, direct from the lorry

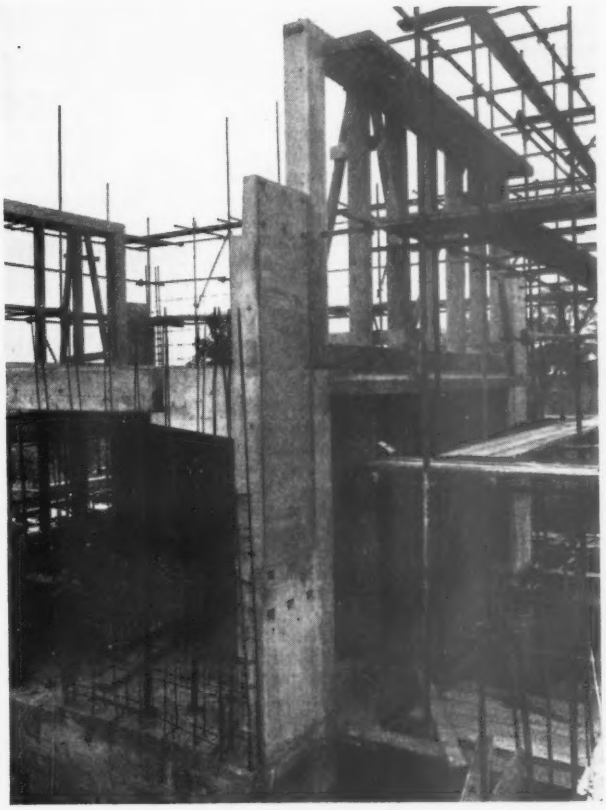
A precast window unit being hoisted off the lorry



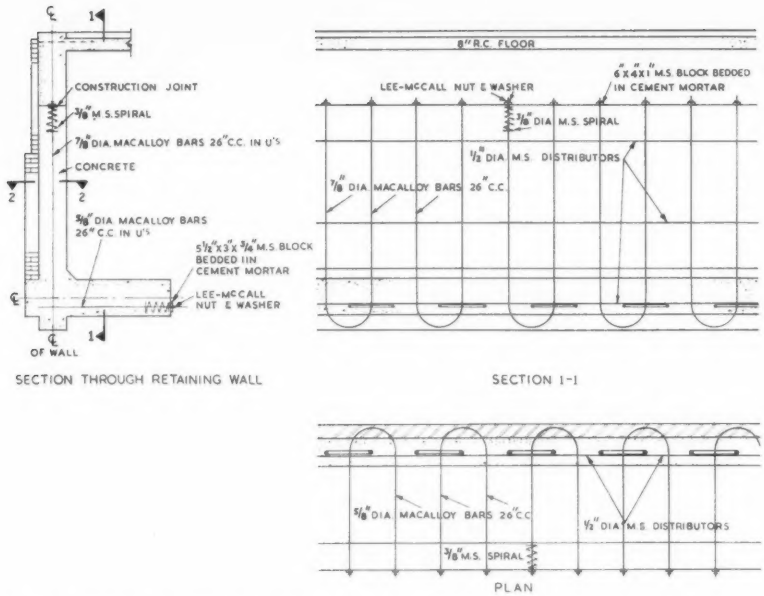
A window unit being lowered into position



A precast post unit, showing the rebated joint and also the knee for hinge assembly to main beam



View showing how the window units are placed on top of each other and not on the floor


CONSTRUCTION JOINT
3/8" M.S. SPIRAL
7/8" DIA. MACALLOY BARS 26" C.C. IN U'S
CONCRETE
3/8" DIA. MACALLOY BARS 26" C.C. IN U'S
5 1/2" X 3" X 3/16" M.S. BLOCK BEDDED IN CEMENT MORTAR
LEE-McCALL NUT & WASHER
OF WALL
SECTION THROUGH RETAINING WALL
8" R.C. FLOOR
LEE-McCALL NUT & WASHER
6" X 4" X 1" M.S. BLOCK BEDDED IN CEMENT MORTAR
3/8" DIA. M.S. SPIRAL
1/2" DIA. M.S. DISTRIBUTORS
7/8" DIA. MACALLOY BARS 26" C.C.
SECTION 1-1
5/8" DIA. MACALLOY BARS 26" C.C.
1/2" DIA. M.S. DISTRIBUTORS
3/8" M.S. SPIRAL
PLAN

Plan and sections showing the reinforcement of the retaining wall

while the north and south arms are widened to contain lavatory accommodation, the kitchen and a music room. The basement contains a central store and the boiler house. From the first floor upwards the building rises sheer in its cruciform plan, enabling the classrooms to have cross lighting and ventilation.

The storey heights of the first and upper floors is 10 ft., but the interposition of the mezzanine has the effect of setting the first and upper floors of the northern arm 5 ft. below each corresponding floor in the rest of the building, so that uniform flights of stairs each rising 5 ft. serve as approaches to the various floors with an almost entire absence of corridors. The uniformity of plan shape and of storey heights allows a corresponding uniformity of constructional components, of which full advantage has been taken.

Construction. Up to the first floor the general construction is of in situ reinforced concrete but above that level the utmost use has been made of precast and prestressed concrete components coming to the site on lorries and needing only to be lifted by crane and lowered into position. The precast windows are 20 ft. and 26 ft. 9 in. long by 10 ft. high and sit on each other and not on the floor. Each has a hood to which a balcony will be fixed.

Reference to the axonometric illustration will reveal that shaped concrete piers, or posts, rise at each side of the windows and in other parts of the building; they are in precast reinforced concrete 2 ft. 9 in. wide by 15 in. thick, their ends being rebated to form a splayed vertical scarf joint which receives the next length of post, six bolts making the connection.

These posts take the prestressed main beams supporting the floor slab units and for this purpose each has a rebated projecting knee, but the beams do not rely on the rebate for support as they are connected by a hinge assembly of holed bars cast both in the knees of the posts and the ends of the beams; when the beams are lowered into position the respective sets of bars align and are connected by bolts passed through the holes.

The stairs in the upper floors were cast off the site in prestressed post-tensioned concrete in uniform flights of 5 ft. rise, each flight being composed of two similar units. They rest on in situ beams and walls. These flights were also placed in position by a crane direct from the lorry. Thus the adoption of a uniform plan shape and storey heights allowed the site work to be considerably reduced, as the units of posts, beams and windows needed only to be lowered into position and bolted, and with a similar procedure for the stairs the work of erection was able to proceed with rapidity.

The retaining walls of the basement show an interesting use of prestressing. They were originally designed for normal reinforced concrete, but it was found that the allocation of steel allowed at that time would have meant delaying the start of the work; it was therefore decided to prestress the retaining walls.

A mass concrete slab was formed to take the base of the retaining wall, which was designed with an inward and outward projecting foot. In this foot U-shaped Macalloy bars were placed and the vertical portion of the wall was similarly provided. When the concrete was placed the semi-circular part of each bar became a fixed point and this enabled the bar to be tensioned by means of its two ends, and this technique saved a double set of anchorages.

As the progress illustration shows, the external covering of the building is in thin slabs of Portland stone, rough-faced in the lower portion. The slabs are mainly 'off-cut' stones which, by their comparative cheapness, have permitted the building to be faced in stone at a figure comparable with that of brickwork.

The structural engineer is Mr. R. F. Galbraith, B.Sc., M.I.Struct.E., A.M.I.C.E., and the general contractors are Messrs. Bernard Sunley and Sons, Ltd.

Perspective sketch of the school, drawn by Lawrence Wright [*A*]

Fig. 1. Zum Grunegg offices, Zürich. Main façade

Panel Walls in Framed Buildings

By Denzil Nield [*A*]

The subject proposed for the Alfred Bossom Research Fellowship, 1949, *was the design and detailing of panel walls in framed buildings, with particular reference to facing materials and their fixing. The following are extracts from Mr. Denzil Nield's report.*—Ed.

Analysis of the problem. Steel and reinforced concrete frames offer simple ways of putting up tall buildings, and to fill in the panels is the easiest way to form the enclosure, but frames are not necessarily completely rigid or stable dimensionally; beams deflect under loads and stanchions under wind loads and movement of a frame can take place from movement of the foundations; thermal expansion can affect the total dimensions of a steel or concrete frame; concrete shrinks considerably on setting, expands slightly on wetting and shrinks slightly on drying again.

The amount of such movements may be hardly measurable, but they are aggravated by complications arising from similar and sometimes opposite movements of other parts of the building; the panels may be filled in with materials made with cement, which shrink on first drying out and may expand on wetting again; a thin facing of another material may have totally different properties, and so there is a complicated series of small but sometimes cumulative and sometimes contradictory movements taking place which must be borne in mind by a designer.

A designer may try to restrain the movement, but this is difficult as the stresses set up are considerable and restraint usually fails at one point and the relief of all the forces causes one big defect instead of many little ones. Or a designer can match the materials so that movement of the frame and of the panels and facings will be about equal. This is possible but not easy; a facing material will get wet and expand but if it is efficient it will protect the other parts of the building and therefore they will not expand. The outside of a building may be subject to considerable temperature change, whereas the inside may be kept nearly constant. The panels, or facings, can be fixed so that they are free to move independently; this is a sound system but needs careful designing as it usually involves joints which will open and close, and they must be made waterproof.

The problem of expressing the frame or using a veneer of facing material over the whole elevation is not purely an aesthetic one; if the frame is expressed some faces of each member are exposed to the weather, and if the panel is recessed, as it usually is, it will be protected. Sometimes the panels can be made to project slightly so that only the face of the frame is exposed, but then the top edge of the panel may be exposed. The effect of the shedding of water from one face or material to another must also be considered.

Examples in Switzerland. One of the most interesting buildings studied was Zum Grunegg, a block of offices in the Tal-strasse, Zürich (Fig. 1), completed in 1949 to the designs of Pfister Brothers of Zürich. The structure is of reinforced concrete, partly as a frame and partly monolithic; on the main façade the piers act as stanchions and the walls below the windows are designed as deep beams. The blank return walls and end bays of the façade are reinforced concrete.

The chief interest in this building is in the facing material and its fixing. The architects are convinced that natural stone gives the best finish to large urban buildings, and given a supply of suitable stone, as there is in Switzerland, the problem is to find a satisfactory method of fixing. There are drawbacks to the usual method of using metal cramps; they have to be of expensive rustless metal, and they should be strong enough to take not only the weight of the slabs they are placed to support but also of other slabs which may bear on them in the event of slight displacement by structural or other movement or by failure of other cramps.

Bearing in mind the failure of some cramps on the Congress Hall, Zürich, the architects considered the possibility of relying on adhesion. This would depend on the key that could be given to the back of the stone facing and the gripping properties of the backing. Tests were made with different stones and different mixes of concrete, and satisfactory results were obtained with one type of limestone with the back left rough from the quarry working, with a minimum of tooling to get a reasonably flat plane. The slabs were 2⅝ in. thick and none was larger than 1 ft. 10½ in. by 3 ft. 1 in. They were not treated to prevent staining from the cement in the backing. The texture as left from the saw is shown in Fig. 3.

Reliance was not placed wholly on adhesion; small dovetail keys were cut in certain places, but more particularly the architects developed an elevational treatment having bonding courses near the floor levels so that there was a dead bearing supporting each storey height of slab facing (Fig. 4). These bonding courses were in granite of rougher texture and went 2⅝ in. into the concrete wall. To counteract a tendency to horizontal emphasis the elevation was broken vertically with wide channelled joints. These channels mask some of the slab joints, but this was not the primary intention

Fig. 2. Neue Züricher Zeitung offices, Zürich

except at the corners, where narrow rebated slabs were used to avoid showing the edges of the thin slabs.

An important point is that the facing slabs were built up with wide joints and bedded in weak cement-lime mortar; this set more slowly than the concrete backing and would take up any movement due to the initial shrinkage of the concrete structure without placing any compressive stress on the edges of the slabs. The necessity was stressed of constant and thorough supervision by the architects as the margin for error is very small in the case of joints not properly filled in, concrete not properly packed, and ill-considered working joints in the concrete structure. The sills were of galvanised cast iron which, in Zürich, were cheaper than the copper flashing type which previously were commonly used.

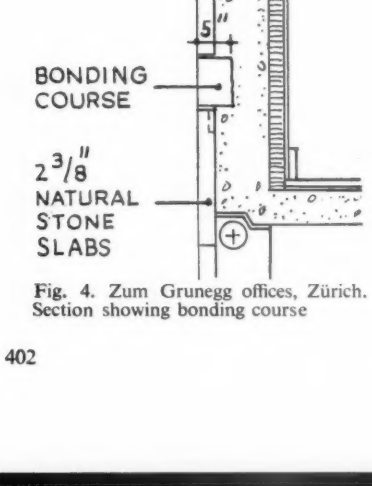


Fig. 4. Zum Grunegg offices, Zürich. Section showing bonding course

The failure at the Congress Hall, Zürich, has been mentioned; parts of the building were of concrete construction faced with large slabs of travertine in some cases 3 ft. wide by 7 ft. high and only 1 in. thick. Two cramps were used at the top and bottom edges of each slab, which were fixed on large pads of mortar in accordance with normal marble-fixing technique (Fig. 5). There was no wide overhanging roof and so the facing was exposed to much washing by rain, and although joints in marble can be very close they are not likely to be completely watertight.

As the slabs were thin they presented a very narrow edge for cutting a mortise for the cramp, and the thickness of the cramp had to be limited and so was not capable of taking a large load such as slabs additional to the one it directly supported.

A large area of the travertine fell off during one cold winter, presumably due either to water getting behind and freezing or to fracturing of the travertine by thermal movement at a time of extreme daily temperature change. It is therefore reasonable to assume that the large area was broken away by the failure of a few fixing points.

A logical use of thin slabs of natural stone or marble would appear to be in narrow bands such as window spandrels supported on projecting window heads and protected by the projecting sill of the window above. Then the unsupported height is comparatively small, say 4 ft.,

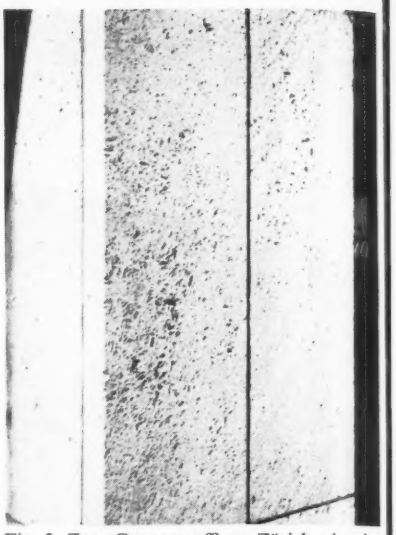


Fig. 3. Zum Grunegg offices, Zürich, showing texture from saw

and cramping or other fixing is only necessary to hold the slabs in position. An example of this is the Neue Zürcher Zeitung office building at Zürich designed by Müller (Fig. 2). Here the slabs, approximately 17 in. by 12 in. by 1½ in. thick, are fixed with brass wire cramps cut and pinned where necessary to the backing of lightweight concrete blocks. The rather wide mortar joints are made with coarse sand to match the stone texture (Fig. 6).

A novel method of fixing thin natural stone facing slabs for window spandrels was used in the Parkhaus flats at Basel, by O. and W. Senn. This is a steel-framed building which has cracked badly in places, but the facing slabs on the front elevation have not been affected by this. They are marble 1¼ in. thick, and before erection a 2½ in. thick layer of lightweight aggregate concrete was cast on the back, with metal fixings such as hook rods incorporated in the backing as necessary (Figs. 7 and 8). This method gave a better chance of getting good adhesion for the slabs and the provision of fixings in any desired position was a great advantage.

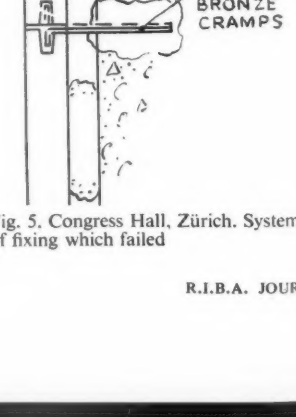


Fig. 5. Congress Hall, Zürich. System of fixing which failed

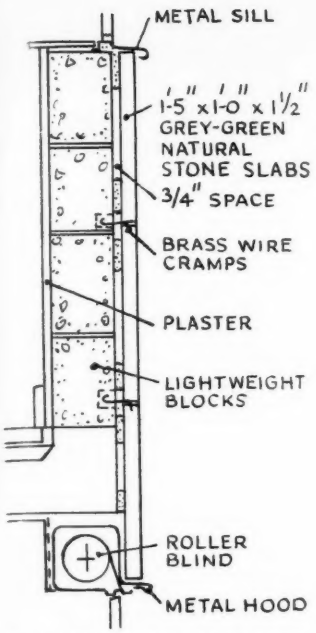


Fig. 6. Neue Zürcher Zeitung offices, Zürich. Section through front wall

One of the best examples of the "structural mullion" treatment of a façade is shown in a block of offices in the Stampfenbachstrasse, Zürich, designed by Becherer (Fig. 11). It is a reinforced concrete building with a central spine of large beams and stanchions spaced some 17 ft. apart. The floors span from these to the external framework of small stanchions spaced at 5 ft. 8 in. centres, and the external stanchions and the narrow beams between them are encased in terrazzo precast units. A window fills each bay and the solid panel therefore only amounts to a small spandrel 4 ft. 8 in. by 1 ft. 7 in. below the window. This spandrel is deep-set in the frame and presents no weathering or other problems. The idea is pleasantly simple and the construction logical, provided a suitable treatment can be found for the narrow face and wider reveals to the stanchions and beams (Fig. 9).

Examples in Germany. In Hamburg the Grindelberg scheme for tall flats was drawn up by the British Occupation Authorities, but after the concrete foundations had been laid the work was stopped and later was handed over to the Germans, and the buildings were completed by a group of Hamburg architects working under the title Architekten-Arbeitsgemeinschaft (Fig. 13). Broad-flange steel beams were used for the frame and brick for the walling and facing; 9 in. thick walls were mostly used with an airspace behind them and then an inner insulating lining of aerated concrete block (Fig. 10). The bricks are hard, dense semi-clinker with chamfered arrises and with large hollows to reduce weight. They are rough enough to allow good adhesion to the gauged mortar but appear to have very little absorption, so there should be no penetration of moisture.

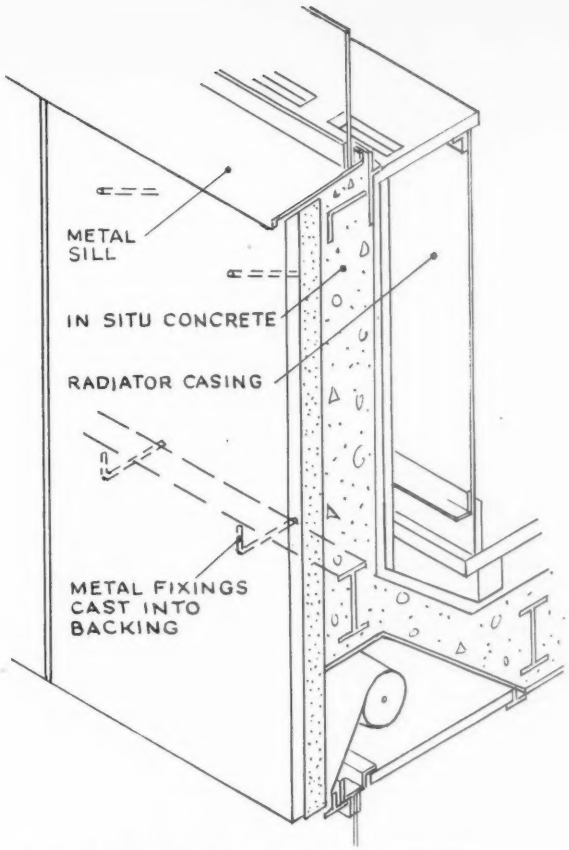


Fig. 7. Parkhaus flats, Basel. Section through front wall

The dead weight of these panel walls is probably not as much as might be expected owing to the design providing for very large double-glazed windows; the solid brickwork is therefore little more than stiffening to the frame, although the actual connection to it is very slight. A point of interest to note is the use, which is quite common, of rebated bricks to give a 2 in. reveal and 2 in. rebate for the wood window frames (Fig. 14). This reduces the width of the external sill and so economises in copper, while a reasonably protected window-to-wall joint is retained.

Another building examined in Germany was the Gewerkschafthaus in Frankfurt-am-Main, architects Max Tant and Franz Hoffmann. The building has a very substantial concrete frame which is exposed externally. The aggregate on the faces of the stanchions is exposed, the arrises having tooled margins. Every panel consists of steel windows in a basalt concrete frame in the upper part and a spandrel of lightweight blocks faced with small marble slabs in the lower part. Although the stanchion spacing is rather wide there is no cracking; the marble slabbing has very fine joints which are still quite tight. The panels are set well back behind the frame face so they are well protected; on the other hand the frame is more exposed and a very wide copper flashing is fixed over the beam, this flashing turns up behind the marble and at the ends is let into the sides of the stanchion.

Examples in Holland. The Plaslaan flats, built in 1937 to the designs of Van Tyan, Maaskant, Brinkman and Van der Vlught, have a reinforced concrete frame, the stanchions being 1 ft. wide on elevation for their full height but increasing in depth from 1 ft. 6 in. to 4 ft. 3 in. This took care of lateral stresses in one direction;

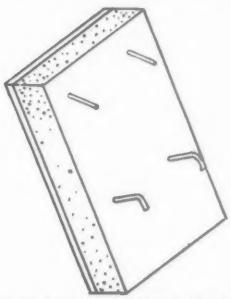


Fig. 8. Parkhaus flats, Basel. Lightweight concrete slab cast on back of marble slab

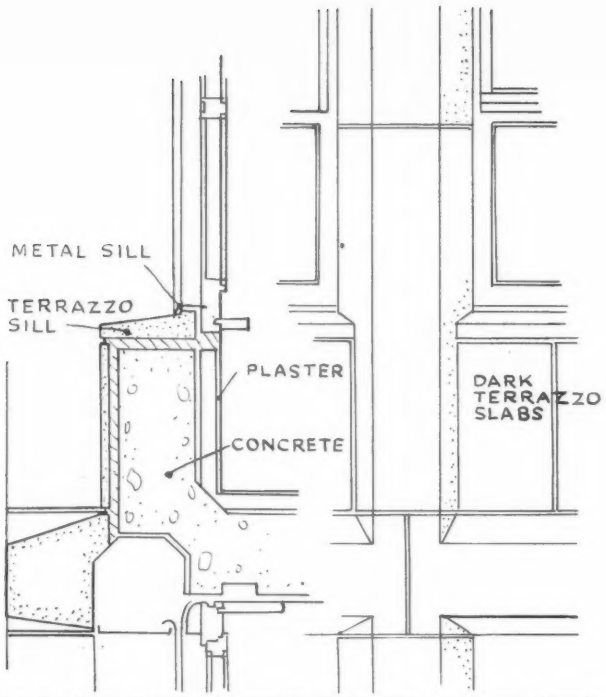


Fig. 9. Offices, Stampfenbachstrasse, Zürich. Part section and elevation of main façade

the end stanchions were turned round and take part of the lateral stresses in the other direction, but owing to this and the wide bay spacing the main longitudinal beams have rather pronounced haunching (Fig. 12). The panels on the main elevations are wood frames with wired glass. The aerated concrete block lining is plastered both sides and the side behind the wired glass has been finished with white paint so that the glass shows green from a distance (Fig. 15). In this case a recess was formed in the soffit of the beams so that the head of the frames could be eased into it and good fixing at the top of the panel obtained.

The panels on the end or gable walls where there are no or few windows are faced with bricks backed with insulating blocks (Fig. 18). The block wall of clinker concrete was built up on the concrete beam and bituminous felt sheeting dressed up against it using a bituminous adhesive. This was dressed over the beam edges top and bottom, also over the sides of the stanchions and the brick facing built up against it. Ties were demanded by the authorities, which had to penetrate the felt, but these were sealed with bitumen. No dampness has come through.

Examples in France. The most interesting work of French architects is in their use of concrete, particularly in precast units secured to a frame. In the flats at Drancy, by Beaudouin and Lods, the Mopin system of construction was used. The interest rests in the weathering of the round white pebbles of Carrara marble which were pressed into the face and the jointing of the units.

The appearance of the pebbled units is still very good on the south-west façades, which are well washed by rain. The rough texture ensures that the washing is even and complete and these façades still present a sparkling white appearance. The vertical joints between the units are in a mastic composition; the horizontal joints—which occur only at floors—are dry on the face with in situ concrete behind. The vertical joints are not very satisfactory and have to be re-done with a pressure gun at intervals. As seems almost inevitable with semi-dry concrete construction the rain penetrates in a few places and runs down to the base, where it is slow in draining out; this causes a discoloured patch at the base.

The drawings were inspected of a project, now completed, for blocks of flats at Sottville-sur-Seine, also by Beaudouin and Lods, using a reinforced concrete frame and precast concrete external units, laid horizontal. The architects have abandoned fixing the units to the frame, in fact they specifically avoid it; the units are bonded back to the lightweight but not unsubstantial insulating blockwork behind. (Fig. 16). Pebble-faced slabs are used, similar to those in the Drancy scheme.

Another of Beaudouin and Lods buildings is the École de Plein Air at Suresnes. Here a steel frame was used for the two-storey part but between the stanchions a brick wall was built and the outer cladding was attached to small vertical steel members fixed to the brick wall. The outer cladding is of precast panels 6 ft. square and 2½ in. thick, with cross ribs at the back of 1½ in. projection (Fig. 17). The architects, remembering the difficulties of the mastic joints at Drancy, tried using ¾ in. wide joints in mastic ¾ in. recessed. They are no more satisfactory than the joints at Drancy, however, as it has been found that although the joints compress when the slabs expand, when the slabs shrink again the mastic tends to adhere to one slab and to come away from the other, rather than to adhere to both and stretch.

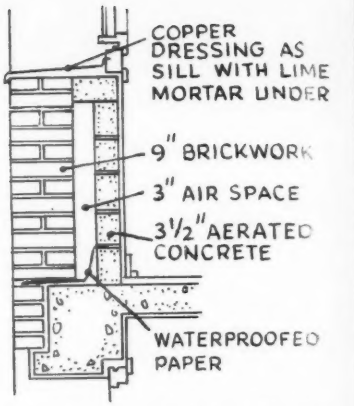


Fig. 10. Grindelberg scheme, Hamburg. R.C. framed flats, 1951. Section through bedroom window

The slabs have a most attractive appearance as large round pebbles have been used, some as much as 3 in. long. They vary in colour from slate blue through white and cream to hen's egg brown. The texture is, of course, enormous and is only suitable for such a large area of unbroken walling, but it is very impressive (Fig. 20). The window openings were made to come in the middle of a slab, or at least to be contained within it. This was not successful as it was found that the units were not strong enough and the narrower members tended to break off.

Conclusions. There now seems to be a definite preference on the Continent for concrete frames rather than steel for high buildings. Steel is still used where speed is important or where economic factors give it an advantage. The first flats at Hamburg had a steel frame because the steel was available and cement was wanted for smaller buildings and other jobs; later blocks have concrete frames. Steel was used for the laboratory for the Brown, Boveri Company at Baden because cement was not available, but all the persons concerned rather deprecated its use. Engineer Maaskant said that in Holland steel was used before the war because it was cheap; the average price per kilo was 8 Dutch cents, now it is 60 cents.

The question of fire resistance is also a factor in the choice between reinforced concrete and steel. Casing the steelwork in concrete is not demanded by the authorities, but the danger to the building of dispensing with a casing is recognised by insurance companies; in Holland they give a 15 per cent rebate on reinforced concrete framed buildings and this has

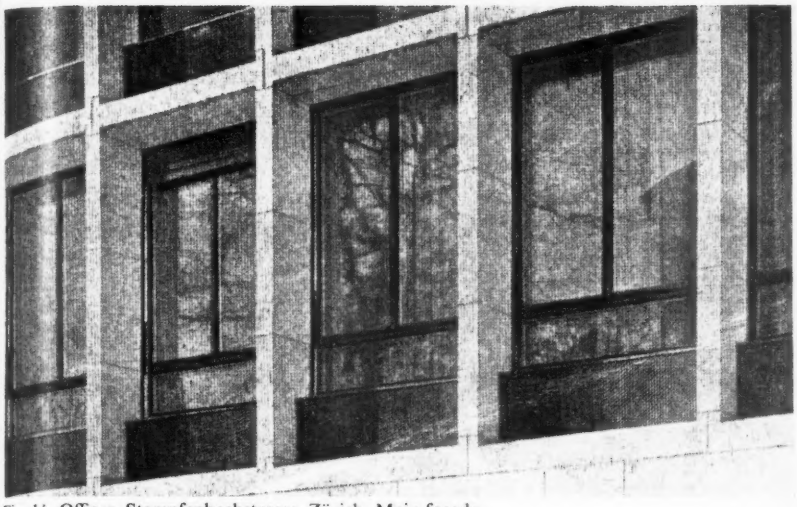


Fig. 11. Offices, Stampfenbachstrasse, Zürich. Main façade

Fig. 12. Plaslaan flats, Rotterdam. View from north-east

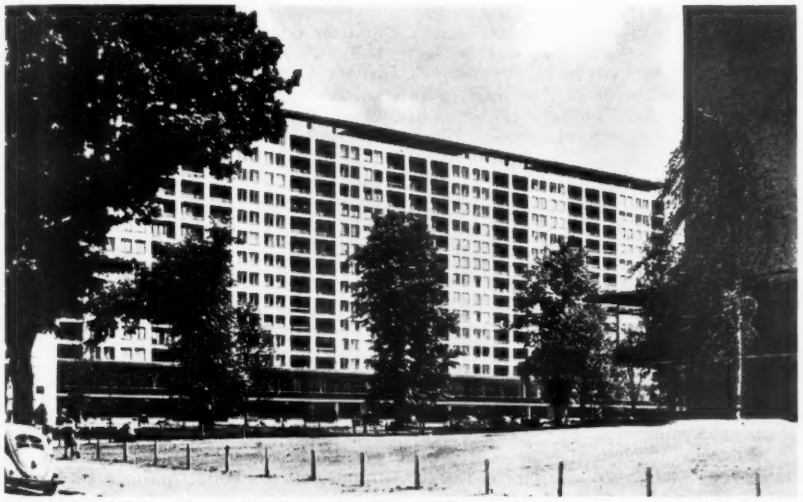


Fig. 13. Grindelberg scheme, Hamburg. Steel-framed flats, 1949

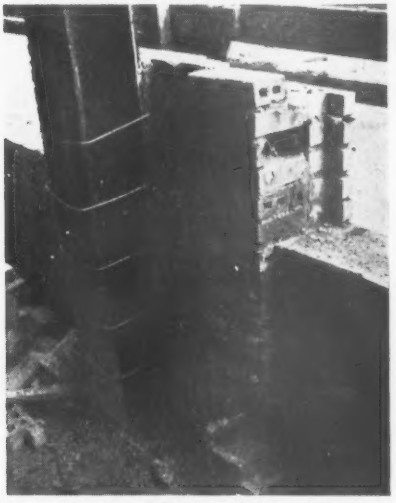


Fig. 14. Grindelberg scheme, Hamburg, showing rebated brick reveals

been increased recently to 50 per cent on building and contents.

Most Continental engineers and architects are amused at the British system of putting up a steel frame and then surrounding it with concrete which would, with the addition of a few rods, support the building and enable one to dispense with the steel frame! The choice to them is not between cased steel or reinforced concrete but between steel and a higher insurance, or reinforced concrete and a lower insurance. Where steel is used it is wrapped in expanded metal lathing and plastered, and it is interesting to notice that the new L.C.C. by-laws permit 2 layers of metal lathing with 2 coats of plaster each $\frac{3}{4}$ in. thick, having wire reinforcement bound round the first coat, to be used where a fire resistance period of 4 hours is required.

But chiefly the greater design flexibility with concrete and the greater rigidity obtained is influencing designers to use it more than steel. As an instance of the greater flexibility the Plaslaan flats in Rotterdam can be cited. The reinforced concrete stanchions can be shaped and placed on the plan so as to be easily masked by the double party partitions; similarly the structural mullion system, described later, is more easily carried out in concrete. The greater rigidity is also an important factor as architects, particularly in Switzerland, are very conscious that defects in the façade of a framed building are often due to movement in the frame, or between the frame and the panel, and they can be primarily attributed to lack of stiffness. Continental designers do not appear to be so concerned with reducing the size of structural members to an absolute minimum; stanchions inches larger than would appear necessary are common, and do not look too heavy.

No clear distinction is drawn on the Continent between framed and monolithic concrete buildings, and buildings are often framed where openings are required, but blank walls are in concrete and are used for wind bracing. The blank walls in reinforced concrete present no panel/frame problems. From this one might argue that if panels were always in thin slabs of reinforced concrete no panel/frame troubles would arise, but the problem is not as simple as that because a not inconsiderable proportion of reinforcement is necessary to distribute stresses from shrinkage, etc., even in reinforced concrete thin panels.

The structural mullion system described in connection with the offices in Stampfenbachstrasse, Zürich, gives a very logical part solution to the problem by reducing the panel to such a small size that its thickness-to-area relationship does not matter, and the chances of defects in the panel-to-frame joint are small because such defects are usually relative to the size

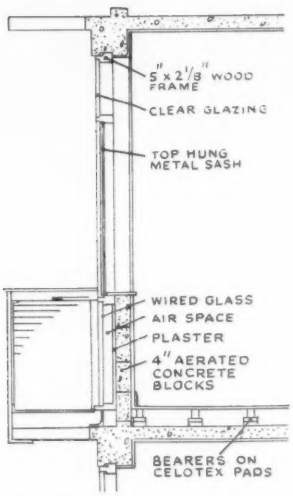


Fig. 15. Plaslaan flats, Rotterdam. Section through window

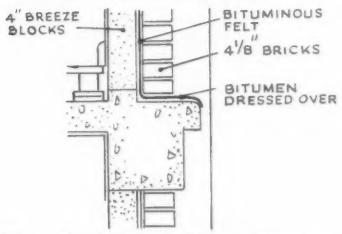


Fig. 18. Plaslaan flats, Rotterdam. Section showing bearing of panel

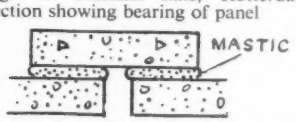


Fig. 19. M. Lod's method of jointing with mastic and a fillet

of the panel; there are, of course, many more such joints. The biggest factor against such a system is probably expense, as the large number of mullions or small stanchions need clothing and such close spacing is not economical from the point of view of the concrete used. One English engineer said it would be cheaper to put reinforcement only in every other one, as the same area would do the work of two.

The question has been asked whether panels could not sometimes take the wind load. In an economical design for a pure frame, that is with no blank walls, the measures to resist wind load have led to cumbersome beam-to-stanchion connections.

There would appear to be no particular reason why panels of solid masonry should not take the lateral stresses; the point is that the strength of the panel would have to be calculated, including the reductions to be allowed for openings in the panels. It is likely that it would be found that rather heavy panels would be required and that diagonal bracing, or a reinforced concrete wall or stiffer joints would be more economical. Wind loading has been a subject of a study of which the result

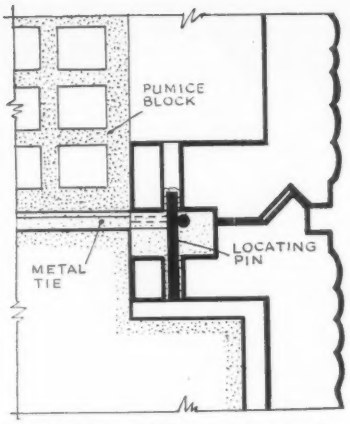


Fig. 16. Flats, Sotville-sur-Seine. Section showing fixing of concrete wall units

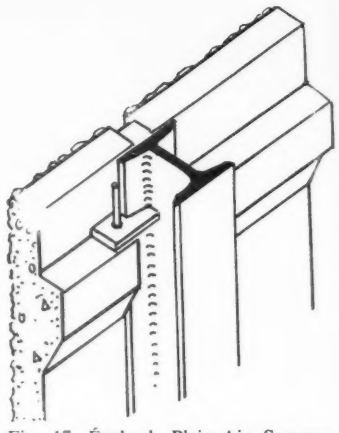


Fig. 17. École de Plein Air, Suresnes, Paris. Sketch showing the fixing of the slabs to steel vertical member

appears as a Functional Code of Practice and has resulted in reduced design loads in buildings in towns and districts not exposed to high winds. For masonry panels to assist the frame to take any loads one would have to be very sure of the solidity of the bedding of the bricks or blocks and the pinning-up of these to the underside of structural members.

Panels that provide their own facing. Bricks. Bricks for the panels still seem to be a logical solution where such an appearance is desired. Brickwork can be the main panel and facing material in one, and there is evidence that 4½ in. thickness is sufficient for strength for panels of 10 ft. storey height and not excessive length, say 15 ft. Stiffness can be increased by reinforcement in the horizontal joints. There is room for the design of a brick which allows vertical reinforcement and at the same time keeps normal bonding. 4½ in. brickwork may not be waterproof or sufficient insulation but a separate waterproof skin can be formed and insulation added.

Purely as a facing, bricks are thick and heavy, and the development in Britain of good and even-quality facing briquettes might be useful. The size of some seen in Paris was 8½ in. by 1⅛ in. by 1½ in., and similar ones in Holland were 8¾ in. by 2 in. by 2 in. This would be more expensive than ordinary brickwork as the unit is smaller and more would be needed, but it should be cheaper and more reliable than tiling. Bricks used in Holland and Germany are much harder and smoother than ours and presumably have less absorption, but a good joint is obtained with the mortar just as a good joint can be obtained between a blue Stafford brick and a cement mortar.

Where an unbroken façade of brick is required over a frame, 9 in. brickwork, as in the Hamburg flats, would seem inevitable. If the windows are very large the proportion of void to solid is high and dead weight probably not uneconomical; otherwise 9 in. brickwork does not seem to be a very reasonable solution in these days.

The frame-to-panel problem outlined previously is not serious in the case of brick panels, as the brickwork has virtually no shrinkage. If the joint between the brick and the concrete stanchion is well packed with mortar and the top is well wedged up to the underside of the beam above this should be sufficient. In most cases ties are easily provided, so that the additional security they give is probably worth while.

Materials for facing only. Natural stone and marble. These still have qualities which make them good for facings; the only point not usually appreciated is their freedom from moisture movement as compared with all materials made up with cement. We have a wide range of stones in this country probably useable for facings.

There would seem to be two main alternatives—to use small thin stones like tiles, or in large slabs. Small tiles can be fixed with light cramps to lightweight backing provided that no great height is used unsupported and that it is well protected either by setting back in the frame or by a good overhang of window sill or coping above. The trouble with large slabs is that they are heavy and need good support, but if carried on bonding courses at frequent intervals cramps only become necessary to tie them back adequately. If the slabs are carried entirely on cramps the cramps must be strong and therefore large, and so large mortises are needed in the edge of the slab, with a wide margin of stone on each side to insure against splitting away. The middle third seems to be the accepted maximum size for the mortise. This usually leads to very thick slabs, which means very great weight.

The evidence is extremely conflicting on this matter of size of slabs and cramps and a great deal depends on the craftsmanship. Many examples of thin marble facing with no apparent dead bearing seem to be in excellent condition after many years, but we in this country are not so experienced in this type of work and adherence to the frequent bonding course method would seem sensible. The method of casting a slab behind a thin marble slab, as used in the Parkhaus flats (Fig. 8) so that metal

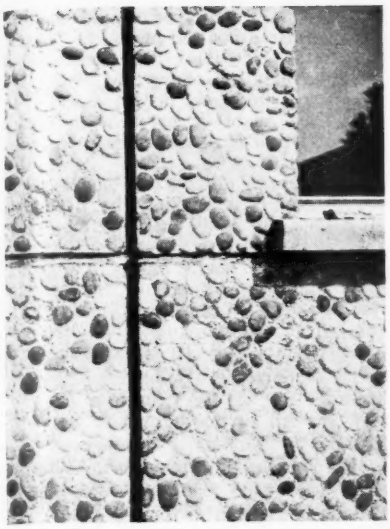


Fig. 20. École de Plein Air, Suresnes, Paris. The pebble facing of the slabs

ties or cramps can be incorporated should be tried out in Britain, as it seems to have many advantages. Tests should also be made to find out the possibilities of relying more on adhesion, to get round the cramping problem.

Apart from the question of room for the cramp in the edge of the slab, the thinness depends on the nature of the stone itself and the overall size of the slab. Nothing much can be learned from Continental examples; we must find out how British stones can be sawn, but one masonry expert expressed himself as confident of using Portland stone slabs 1¼ in. thick for sizes up to 3 ft. by 4 ft., provided good fixing could be designed and handling reduced to a minimum. The question of water absorption and rain penetration would have to be gone into, also the question of staining if such slabs are to be backed up solid. Treating the back with a waterproof skin, such as some bitumen preparation, which will not itself stain the stone may also prevent any adhesion.

Facings made with cement. Concrete blocks. Panel walls built up of concrete blocks have very rarely been used except in cases where appearance was not taken into account, as in the past they have looked bad under normal weathering conditions. The particular care which has to be taken to make the face look good and weather well means that it is more economical to make a slab than a block.

Large concrete units. Large precast concrete units have been made for some time, and a few of the points which affect the use of such units in high framed buildings may be considered.

Large precast concrete units, either for vertical or horizontal use, seem best designed as panel and facing only and cannot conveniently be made to provide insulation and internal face as well. Large units have been made of sandwich type with facing, core and insulation in one; in some cases they have been cast on the floor slab of the building so that they only need hinging up. There are many factors to be considered, such as the most convenient size relative to the whole design, to the plant available and to the jointing to the structural members.

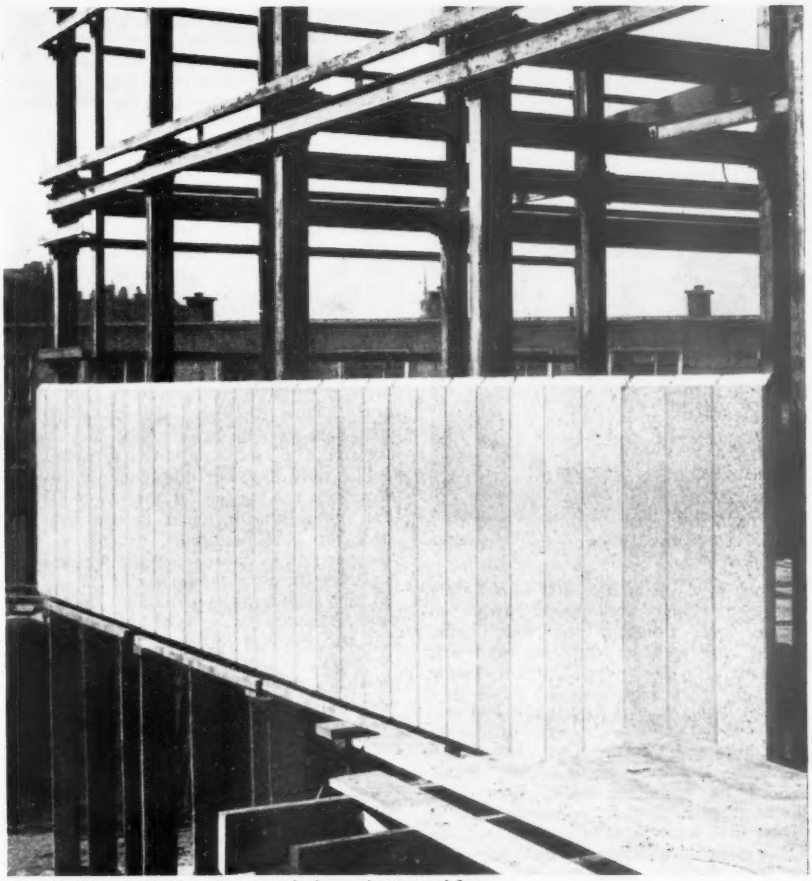


Fig. 21. Flats at Poplar. Concrete facing units to steel frame

Study would also be needed on the economic factors affecting the choice between vertical and horizontal units. The horizontal joint, though it is across the direction of the flow of rain down the face, can be made more watertight by a lap or rebate than can the vertical joint. It has been suggested that the most powerful force taking in water through a wall is suction. Suction, or reduced atmospheric pressure, is usually found on the leeward side of a building, sometimes on the two sides. With continuous cavities in a wall this may mean that often the pressure in a cavity on the windward side may be less than the pressure outside. It is easier for water to be drawn through a vertical joint, however complex the passage may be, than for it to be drawn up the vertical rebate of a horizontal joint, against gravity. This is assuming that the joint is not sealed and is large enough to avoid capillarity.

Joints not sealed are now generally preferred in England because of the defects that have arisen in badly-sealed joints. This was borne out by experience on the Continent; Monsieur Lods said that probably the best method of making a sealed joint was using a fillet at the back against which the concrete unit is pressed with a bedding of mastic to cushion it (Fig. 19). The mastic was then under pressure all the time, and any expansion or contraction of the unit would not separate the mastic from either face. This, in fact, is rather similar to the joint used in some British prefabricated systems.

Where cost is a major consideration the units must be made of ordinary concrete with ordinary aggregate, and too much fuss must not be made about precision joints, and in this case the large texture as used by Beaudouin and Lods at Drancy and Suresnes (Fig. 20) are particularly satisfactory; it masks the joint line very well and ensures that rain running down the face is well distributed and so the washing is even. The use of exposed stones over so much of the surface has the effect of pebble-dashing, that is, it reduces surface cracks in the cement so that water resistance is improved.

Perhaps the best comparable English example is in the flats at Poplar, by Mr. W. J. Rankin, the Borough Engineer to the Poplar Council (Fig. 21). These slabs

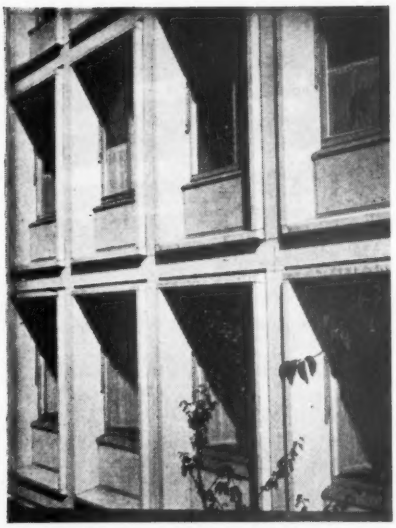


Fig. 22. Dunlop building, Zürich. Concrete framed façade

were cast in wood moulds and were lightly reinforced. They were faced with pea shingle and vibrated, the face being washed with a hose while the slab was still green. The slabs were fixed from inside the frame; they each weighed 1 cwt. and were easily handled by two men.

Concrete and terrazzo slabs. For urban use slabs and cast units often need a smooth or polished finish. When the Bleicherhof in Zürich was examined it was at first impossible to believe that the facing material was not natural, it was so free from the common defects of concrete products such as crazing, cracks and open joints. It was made by a local mason who knew by experience all the local aggregates, their properties, and the best mixes to use.

This would seem to be the key to the problem; we probably have in England the same total knowledge but it is too dispersed to be useful; we also regard concrete as a cheap material and we will not pay for really first-class workmanship; in fact no first-class workmanship, that is, craftsmanship, has been built up for this very reason. Some terrazzo workers in England are craftsmen but their skill has not been applied to the facing slab problem. This is also borne out by the fact that the Cement and Concrete Association have produced some beautiful high-quality slabs, but they were made by a few skilled men who have gained experience gradually, working under ideal conditions without having to consider too much the time spent or the cost of materials.

Producing such slabs under commercial conditions is a different problem but it would help to develop these slabs if a few firms could be persuaded to produce them, using only a few particular types of aggregate and over a period of years, so that the men could gain experience in making high-quality products which we should have an opportunity of seeing and judging how they weather and so on.

Where in Zürich the cast slab has great advantages over natural slabs is in the clothing of structural mullions and the short beams between them. U-shaped units with stooled ends can be cast satisfactorily, and if the design is rationalised so that only, say, five different units other than slabs are needed for the whole elevation, moulds with metal linings can be made up and, although expensive, the cost per unit is cheap over the whole job. A good example is shown in Fig. 22.

Using such units as permanent shuttering would seem to be the most logical method and also the best to ensure freedom from the possibility of hollow spaces allowing moisture to penetrate. The units seen were in fact fixed after the concrete was cast. No doubt the reason is that the builders find it more difficult to retain the units precisely in position while the concrete is being poured, and difficult to keep clean while wet work is being done above.

Panels supporting slabs. The carrying of slabs on reinforced concrete walls presents no problem except the question of jointing and the necessity or otherwise of allowing for the shrinkage of the concrete backing. Other backings have to be used for supporting the slabs, the most common being masonry walling. Brick panels are an obvious choice; brickwork does not shrink and is strong compared with its volume, so that a 9 in. brick wall will hold the cramps for slabs well and carry their weight. At a laboratory at Baden the brick panels are only 5½ in. thick for a height of 12 ft. 6 in. to 18 ft., which suggests that for a normal storey height of, say, 9 ft. from top to beam to the underside of the beam above 4½ in. brickwork in strong mortar, perhaps reinforced, should support slabs which are not too heavy, say 1½ in. thick. Some field trials of this construction would be useful. Hollow clay blocks as backing to slab facings do not seem to be used. They might be excellent for light slabs, and field trials might be useful for this construction also.

In the case of all concrete blocks more care is needed in making the panel-to-frame joint, for if the panel shrinks that is where the crack will most likely come. It is advisable to set the blocks in a rebate in the frame or behind the frame, and from this one can see an important design point which needs pointing out although it is frequently seen. To get an unbroken façade of slabs, that is, carried over and masking the frame, it is even more advisable to have panels that are stable, such as brick or perhaps clay block.

Glass facings and their support. As facing material glass has many advantages; it is very light in comparison with other sheet material, it is reasonably strong, very durable, and where a clean sophisticated appearance is required it looks well; the drawback being the fixing difficulties. In England it has been used only as a facing applied to a solid wall by fixing to rails, etc., attached to a wall, as was done at Alhambra House, Charing Cross Road, by Andrew Mather (Fig. 23).

The method used by Maaskant in his flats at Rotterdam (Fig. 12) was to treat the whole panel as a window by making a subframe and glazing the squares with whatever glass was most suitable; wired glass below the sill, mostly clear glass for the upper part, and obscured glass if it was only necessary to let in light. M. Maaskant considers glass is the best material for facing large buildings.

For insulation the glass can be backed up with insulating material. It is essential that the air space behind the glass be sealed against air passing from the room, because such air would be moist and if it reached the back of the glass the moisture would condense and have no chance to dry out. Draining the space is possible but it reduces the insulation value.

Notes on weathering. Not enough attention is paid in this country to the effect of the washing of elevations by rain, although some architects seem to have taken this into account.

An interesting point was observed in flats at Drancy. The very coarse texture distributes the runlets evenly so that no patterning takes place, but the difference between adjacent elevations is more striking than in other buildings; the south-west elevation is grey and the north-east nearly black. The projection of a staircase on the north-west elevation has produced a 'shadow', an area darker than the rest of the façade. This seems due purely to the fact that the driving rain never reaches this area, which therefore gets washed less than the surrounding façade. The effect is very extraordinary, as even projections of the ends of steps are reproduced in the shadow, as shown in Fig. 24.

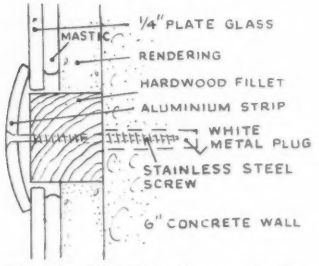


Fig. 23. Alhambra House, Charing Cross Road. Section showing fixing of glass facing

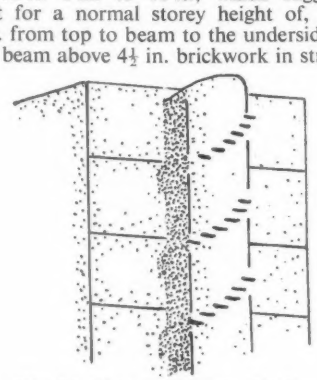


Fig. 24. Flats at Drancy. Shadow effect on portion of wall protected from rain

Science in Schools of Architecture

By W. A. Allen, B.Arch. [*A*]

An edited version of a paper read before a meeting of the Association of Collegiate Schools of Architecture, in New York.

IT WAS SUGGESTED to me that our experience at the Building Research Station in using architects in scientific research might have some interest for you in relation to the general problems of handling science and science subjects in the schools of architecture. As I am not familiar with the curricula which you have in American schools, I am not going to presume to offer any observations about curricula in detail, but my other points might have some interest for you in relation to teaching generally.

One matter I would like to pin-point at the outset is this: there is seldom much doubt about the usefulness of science in architectural studies when the question is just the improvement of some particular part of the curriculum, but a number of people entertain some doubts, often strong, about what are loosely termed the 'broader' issues, as for instance the general relation between science and architecture. A common reaction is to accept the details of science as useful to the practice of architecture while keeping at arm's length the less tangible but rather feared outlook of science. I don't know how widely this occurs in this country. It is certainly to be found in England, and I think it is really nothing worse than one of the fears of the unknown.

It has faced us directly as a problem at the Building Research Station where we had to recognise that the role of the architect in research called for imagination and good design. We try to recruit good designers. Imagination and good design are the essential stock-in-trade of the architect, and that is what we want. What we eventually find is that the people interested in building research always learn to behave scientifically as a kind of second skill, and we are now quite happy about the result of combining these two. That is why my response to your kind invitation to speak here will be to offer comments from this experience.

The most important point is that as architects we have to recognise that the scientific way of thinking is the original source of power in science, and the chief attribute of the scientist. It is not the information he holds but the way of thinking that marks him out. Without this way of thinking, the experimental confirmation of knowledge would not proceed and you would have reversion to a mediaeval outlook where beliefs took the place of facts. The scientific way of thinking and working is, as you all know, the fundamental factor distinguishing the modern world from the mediaeval.

There is nothing very remarkable about the scientific outlook when you put it down in words; it consists mainly in the cultivation of the habit of observing carefully and systematically, trying to reason from observation to hypothesis, then confirming the hypothesis experimentally, and then going back over the reasoning if you find something has gone wrong.

Now, while there is nothing remarkable about it (we all do it in some degree), this practice of reasoning and thinking in this way often led to extreme disfavour or worse in the Middle Ages, for they recognised it as quite a potent thing, likely to break down the existing order, as indeed it finally did.

And, of course, while it sounds easy, it is difficult in practice to discipline the mind strictly to this practice, and no man has ever had a uniformly scientific outlook on all matters around him. All of us are subject to opinions and prejudices we do not or cannot confirm; it is when we accept them unscientifically as facts, and believe them as if they were, that we destroy the foundation of authoritative judgment. This does not matter in many aspects of social life, and most conversations would be poor things if everyone behaved scientifically; but it does matter in professional life.

The point of most interest for us, of course, is that while the scientific outlook is a source of power and authority in the intellectual sense, it cannot design a building. Architectural design is at its roots an intuitive act by which the mind works through its imagination to resolve simultaneously a group of functions in a three-dimensional structure, and proceeds then to give it also a character by which it induces particular feelings in the people who use the buildings. The resolution of the group of functions to be provided for in the normal building is usually too complex to resolve by the step-by-step scientific method, and it is just not practical to attempt to design in this way.

There are, then, two 'mechanisms' at our disposal, the process of reasoning and the intuitive act. And I would like to say a word about what seems to me to be their relative position in architectural training.

I believe the role of scientific behaviour to be essentially preparative. The scientific outlook is the best background for learning and acquiring knowledge and the scientific method is the best way of going about it. There is no question about this. It is equally true that intuition, or imagination, which is the artist's chief tool, can only function in terms of what a person's mind contains. In other words, a mind which understands things over a wide range can be used for high-grade intuitive acts and judgments, while the ill-equipped mind leads necessarily to lower-grade judgments. A good intuitive mechanism is no better than the material it has to use, and nothing can replace knowledge for that.

One might say, of course, one may learn a great deal by observation, but I don't think that is in fact a different argument. No doubt some people learn far more than others by observation, but no matter what our powers of observation are, the appreciation and understanding of something we see (and therefore its usefulness to us) depends upon our ability to explain and understand it, so that it stays in our minds as part of our experience. It is in the ability to comprehend the meaning and judge the implications of things we see that the scientific outlook and real knowledge is of the most use to us as architects.

In other words, the capacity to learn by observation itself depends partly on having some capacity to behave scientifically and upon accurate understanding, such as only good preparation makes possible. This is the case as far as we at the Building Research Station can see. And if a person understands these several functions, the ability to be scientific when necessary need not be confused with a person's artistic behaviour or intrude upon it in any way.

Perhaps the greatest risk that this may prove untrue in practice arises actually among research architects who in the process of investigation naturally become deeply interested in the thing that they happen to be studying, and it tends to loom rather disproportionately large in their minds. This tends to cost them their balance of judgment for the time they are subject to it, but this is part of the larger process of acquiring knowledge for the world, and I think it must proceed. As far as we can tell it leads to no particular harm when an individual resumes normal design activities, and it seems rather that he emerges usually with heightened powers of self-criticism and clarity of thought—the result of his familiarity with scientific behaviour. The feeling and sense of authority and power—an intangible but undeniable aspect of character—is frequently associated with this.

There is another side to this question, for a second benefit which the architect experienced in research and with a cultivated scientific outlook usually acquired is the ability to put individual scientific studies in their proper place. This is very important for professional practice in dealing with the amount of technical data and scientific information which is poured forth at us from all sides these days. We have to realise that scientists, when they prove something, can make it seem very important, because it is a fact; it is tangible; it is proved. And they might make it seem much more important than it really is in relation to the whole of the subject in

which a particular piece of work may be set. But the thing that we architects have to recognise is that it may be no more important than the thousands of things which remain to be found out, and so we must be able to stand firm by our judgments and give a fact no more than its just due in striking our balances. Something proved is not for that reason more important than something unproved. The hardest things to prove are often left to the last, but they have often been found then to be the most important. There is a tendency for individual scientists to forget this, and to forget also that the usefulness of something proved may itself depend entirely on work in another field, of which he may have no knowledge.

Here is where the architect must depend so largely upon what he observes for himself, for it may take scientific organisation quite a long time to put all knowledge on the same footing, if indeed it is reasonable to attempt that. Scientists themselves are often surprised at the willingness of architects to attach as much importance to something they learned by observation as to something that is proved scientifically. We in turn find it sometimes surprising that scientists seem unable so often to see that what they don't study may be just as important to us as what they do study. We have to strike the whole balance in design and cover all the gaps somehow. That is the architect's business.

We have a good example today in the reluctance until recently of scientists to give the same study to human experience in light, heat and sound that they gave to the physical sources of these three stimuli. Human beings are not such reliable recorders as instruments, and it may be that this discouraged scientists to use them as tools for research; even the fact that the stimuli are of no consequence until they are received by the body and mind was not powerful enough to counter this defect for a long time.

Yet here are the architect's controls over people's feelings—one of his main sets of tools. Everything that a person forms in his mind is a viewpoint or reaction to things around him as experienced through the senses of light, touch, or hearing. And the fact that the human side was neglected for so long is a real warning to us when we study the results of research, even when we know the reliability of the scientific method. It cannot replace our judgments, and we must attempt to keep our balance on the basis of observation. But with all this goes the duty to inform ourselves well.

I find it a little more difficult to put down firm views as to how in schools of architecture it may be possible to make some use of the scientific method in teaching. To some extent it must depend on the rate at which architects who have direct experience of scientific research enter into the teaching field. To some extent also it must depend on the further cultivation of our techniques of learning from mature professional life, with ability and readiness to record our experience in the written word so that architects build on one another's shoulders rather than *de novo* each time, as we tend to do. For example, buildings should be published with much more complete explanations of the design. It is no good architects saying, as they do, that they do useful research when they prepare for each major project, and are therefore scientific about their work; if the results of research are not recorded in some systematic way, they can make no material contribution to the world's advancement. We have something to learn from medicine and engineering in this respect.

These are slow methods for the schools, and it is a pity not to be able to speed up. We just have not got the people. But I am sure quite a lot can be done in teaching merely by making clear to the student the different ways he has of controlling and using his mind, rather along the lines I have mentioned. Recognition of the different ways of thinking and working at once opens the way to self-cultivation of them from experience. Once a person recognises these differences he begins consciously or unconsciously to cultivate them as separate habits of mind, and it is not too difficult to obtain from the numerous books on the subject a fairly clear working guidance. For my own purpose I use Bertrand Russell's short and inexpensive book called *The Scientific Outlook* and E. B. Honey's book, *Science and the Creative Arts*. Also the first few chapters of Karl Pearson's *Grammar of Science*. But these are English publications, possibly not readily obtained in America. I mention these in particular because I have been disappointed with so many others dealing with this important aspect of contemporary life. Most of them are far too wordy, with too little guidance for action to be really useful.

Apart from this, I think we must face the fact that it will take some years, even if we work deliberately on the problem, to introduce scientific thinking into architectural training as a natural habit. Apart from the few fortunate architectural teachers who have found it easy and natural to form this habit of mind, we must probably await the extension of the use of architects in scientific research teams to the point where there are enough of them to play an effective part in teaching.

This may not take too long. We have noticed in Britain the growing tendency of architects to take charge of independent researches of a first-rate standard, often associated with development work; I would like to mention two examples.

The first is the work of Richard Ll. Davies' team which is responsible within the Nuffield Organisation for research and development work on hospital design. There the whole team of doctors, nurses, statisticians, and all the rest of the people who are needed for the investigation of a building type on a scientific basis were put under the direction of the architect, who in this case already had research experience.

They proceed in this way. They use their research team as an aid to observation. They examine the problems in hospitals, the movement of nurses, the kind of nursing structure that is used and the kind of attention which patients require. They have formed a hypothesis of a rather different system of nursing and the kind of planning that goes with it, and have examined it carefully over a matter of two years by discussion among medical people and hospital people and by investigations to give confirmation. And now, having formed their hypothesis, they are going forward to the third stage, which is experimental confirmation. They are building two new branches of hospitals, both containing several of the new-type wards. They are designing these themselves, supervising construction through the regional hospital boards in Scotland and Northern Ireland, and there they will have conditions which they themselves have prepared and they will be able to examine the working of their hypothesis in practice and proceed to improvements or extensions of the idea. Their general intention is, of course, to improve nursing facilities and reduce cost, and the interesting thing is the way in which the design of the building is linked to the nursing practice. By doing this sort of thing they greatly strengthen the profession's standing and capacities, and give the medical people a much better deal.

The other branch of our work where we have something of the same sort going on is for our schools. Here the present chief architect of the Ministry of Education, Mr. S. A. W. Johnson-Marshall [*A*], has with him a closely knit team of people whose business is largely the establishment of good principles for school design, and the development of improved methods of construction. On both aspects the ability to work scientifically is the root source of success. Mr. Marshall formerly served as Deputy Architect in one of the counties—my own county of Hertfordshire—and there, with the County Architect, Mr. C. H. Aslin, C.B.E. [*F*], this work had its beginning. It has had most valuable results, with a marked lowering of costs, classified thinking about planning, and vivaciously charming designs.

At the Ministry this development team does its work by investigation and research, publishing accounts of studies regularly. They have recently been helping architects to arrive at a costing method by which they are able to think accurate economics as they carry a design along. They have no general programme of construction—that is left to the counties—but in order to develop new methods of construction they occasionally build (by agreement with one of the county educational authorities) some school which the county had on its programme and they use it as their medium for development. In this way they have the county available as a buying agent, which is important because you have to have buying power to get people to produce new things. It is a very successful arrangement, I think. One can, I am sure, attack any general class of building along some such lines as these and raise the standard of design appreciably.

You will see in these two examples the way an architect each time has taken charge

of a group of research people—handling it as a scientist would, a scientist in a sort of operational research; and my experience with all architects in this kind of work is that after a year or so you find them thinking scientifically, arguing carefully from point to point, knowing the distinction—the quite important distinction—between the things they believe they know and the things they really do know. These people are scientists, by close definition, as much as they are architects; but all this merely underlines my original point that one can be scientific and still be an architect, for in such a case science is a way of behaviour, not the essence of a profession.

I think by such methods as these, using research and development techniques scientifically, architects will be able to extend their power, competence and standard of authority and influence; and if we seek a proportion of our future teachers and professors from among these people experienced in scientific work, I believe we should rapidly accelerate the strengthening of the profession. Good graduate research schools can be very valuable places for the next stage of development.

At the risk of an anti-climax, there is one other remark I would like to make. Before this meeting we had an informal discussion to which I listened carefully but did not fully agree on the conveyance of scientific and technical information in schools.

Now, one is always faced there with the problem that everybody says, 'Oh, there is so much to learn, no man can know it all; we must design buildings with the help of specialists in all fields.' And all specialists of course ask for early contact.

I do not think any building has ever been successfully designed with the architect sitting as chairman of a committee of specialists, and I know of no way in which the main elements of design can be produced successfully except in the mind of one or two men working together, working harmoniously and setting out the main lines of the structure. That is when the imagination works best. I must not rule out early consultation on specialties, of course. The point is to have good preliminary talks if there is some really critical problem, and bring the specialist for that aspect in fully all the way along. I just want to 'scotch' the idea that modern scientific developments lead to design by committees, for I do not believe that, if the main ideas of science are conveyed correctly, there is any difficulty for the average professional mind to encompass them. The main ideas always link you so well to common experience, common observation, and things that happen around you, that it becomes relatively easy then to be widely knowledgeable. Once you begin to relate these ideas and experiences to one another you get day-to-day reminders and day-to-day explanations which help a great deal to lighten the load of memory. Unfortunately we have not reached the stage yet where it can be said that the main ideas over the whole field of building science can be conveyed to an architect; we are still in this kind of unbalanced position where we have some things proved and many things unproved, and we don't quite know how much importance to give to one or the other. We are not in that happy traditional basis where knowledge is embodied in sets of rules and forms. Perhaps that will never happen again, for the atmosphere of scientific thought rules out the transmission of ideas by form rather than content.

Correspondence

A SPATE OF CIRCULARS, FOLLOWED BY CALLERS

The Editor, R.I.B.A. Journal.

SIR,—As one of the 'many architects suffering annoyance from the spate of circulars' referred to by Mr. Maxwell Ayrton in the July issue of the JOURNAL, I feel impelled to reinforce his objection to this 'shocking practice'. It is amazing that contractors, manufacturers, and their agents do not realise the harm they do themselves, besides the monetary loss that must accrue, from the piled up deposits in our waste-paper baskets.

It would appear these unfortunate people are led into the nuisance they cause, probably unwittingly, by subscribing to one or other of some information sheets (which I could name) conveying news of any fresh building work of which they have heard. How they get this news, often valueless, is untold. It can only come, I think, from the agenda papers of local authorities. My clients are warned by me in advance, and where, as is often the case, persistent enquiries are made of me by letter and telephone, information is always refused. To give some idea of the value of these news sheets, in which the same information is circulated many times, one building of mine was still being broadcast eighteen months after it was completed.

It is not only the nuisance of circulars from which one suffers. There follow callers. On one day recently, after the circulars, came no less than twenty-four callers—one of whom had the impertinence to ask for the name of my clients. I wonder would he dare ask a doctor for the names of his patients, or a priest for the names of his penitents? In the result I have been forced to affix an ungracious notice to my front door to the effect that 'Representatives will only be seen by invitation'. Even that does not stop some of the persistent ones.

Later come letters of thanks for interviews granted to representatives, enclosing more circulars, from firms never heard of and whose agents have certainly not been seen. Sorrowfully it must be admitted letters are received from contractors of repute who have done work for me in the past, but these, with a black mark on the memory, go with the others into the waste-paper basket. Should any of them feel aggrieved I trust that they may take this letter, if they see it, as an explanation of the lack of attention their communications have received

Yours faithfully,

L. SYLVESTER SULLIVAN [*F*]

LONDON PLANNING—THE REAL PROBLEM

Dear Sir,—London occupies some four hundred and fifty square miles, and in it live some eight million people. Making allowance for land taken by industry and the special functions of a capital city at some fifty square miles, and assuming that only half the remaining land is used for housing, there is an average net residential density of eight million people in two hundred square miles, or roughly sixty-two per acre.

These figures are very rough but they show that London as a whole is not densely populated. Some parts of it as we all know are grossly over-crowded, but most of it, acre by acre, is loosely knit and some of the land which it has withdrawn from effective agriculture is simply wasted.

The plans for London now in operation all take excess population from the over-crowded areas and deposit them, in new settlements, on agricultural land, at greater or lesser distances from the present outer perimeter. The New Towns, which take them the greater distance, are perhaps preferable to the perimeter housing estates, from the point of view of the people remaining in London, because they promise a green belt of open country; but the two plans working together, as they are at present, seem to be making of the New Towns only the advanced guard of an accelerated London sprawl. Both solutions cease to give satisfaction as soon as one accepts the view that there must be a balance between the claims of town and country for the use of land. Even on a narrower view they fail because of the impossible distances which the townsman must travel from home to work.

These plans must surely not go on; surely we must produce a new design which recognises the real problem of London planning, which is to re-distribute the population, *within the present bounds of London*, in the best way which we can devise to allow a fuller life for its citizens.

To me this suggests a breakaway from the tradition of high densities at the centre descending to low densities at the perimeter. A better pattern of development may be one in which Greater London becomes as it were a constellation of cities, each eventually disentangling itself from the nebulous suburbs of the present day, each drawing people towards its own centre as it establishes its own identity. This would be a long, skilled and difficult operation, but it would be the beginning of the re-creation of Greater London; an identity which we should hold very dear and which must either be re-created or abandoned.

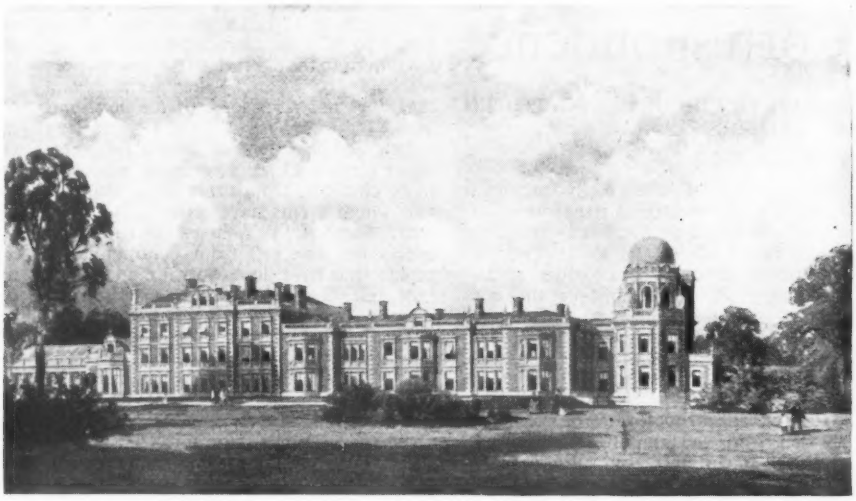
Yours faithfully,

RICHARD BETHAM [*A*]

Unidentified Drawings from the R.I.B.A. Library

IN CATALOGUING and indexing the extensive collection of drawings belonging to the Institute a considerable number of obviously important drawings have come to light, about which little, sometimes nothing, is known. In many cases there is no indication of the authorship of the drawing or, where the artist's name *is* known, what the subject of the drawing may be. In not a few cases both the artist and subject are in doubt. In this issue, therefore, we reproduce a number of the drawings in question in the hope that some of our readers may be able to throw light upon the particular problem which each presents. The Librarian or Drawings Assistant will be pleased to receive any suggestions.

Fig. 1. Christ Church Priory, with projected additions (never carried out). This was found among drawings by P. C. Hardwick, but is not by him. Who is the artist, and was there ever a scheme for reconstructing the Priory?



Figs. 2 (above) and 3 (below). Large perspectives by William Burn. The houses have so far escaped identification. Until they are identified they cannot be associated with plans that may be in the possession of the R.I.B.A. Library.

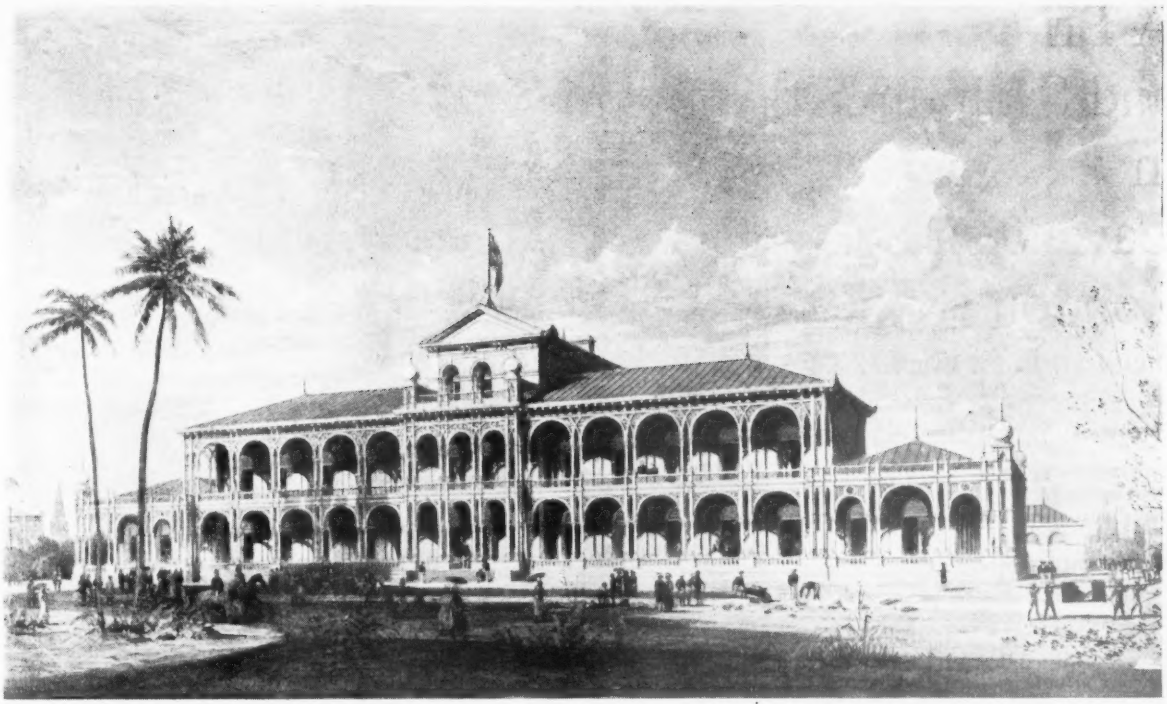


Fig. 4. A Government building in India. Another fine drawing by William Burn. Burn designed Madras College, but this drawing does not tally with such elevations of the College as the Library possesses. What building is it?

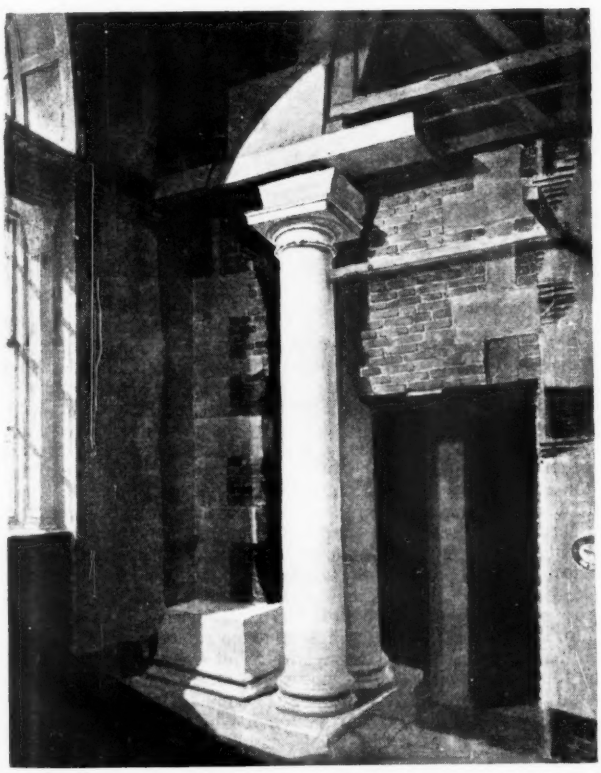


Fig. 5. A study in underpinning in the style of Sir Robert Taylor. If the subject were identified authorship might be surmised.

Fig. 6. An eighteenth-century Italian drawing of a *tempietta*, giving details of dome construction. Again, what and by whom?

A Bridge and Sculpture in Cavendish Sq., London

Architect: Louis Osman, B.A. (Arch.) [*F*]

Sculptor: Jacob Epstein

A FORGOTTEN LONDON VISTA has been recalled by the recent placing of a Madonna and Child by Jacob Epstein in Cavendish Square. Mr. Louis Osman [*F*], commissioned to execute war damage repairs to a convent, discovered that he was dealing with the terminal point of one of the longest vistas in London.

The vista extends—or could extend were it not obstructed by plane trees, a cab shelter and an implement shed—for a distance of 600 yd. from the portico of St. George's, Hanover Square, across Hanover Square and Oxford Street, and terminates in the centre of the north side of Cavendish Square. It is at this last point that Mr. Epstein's and Mr. Osman's combined work has been placed.

Had Cavendish Square been completed as was originally intended, this vista might not have become sunk in obscurity, because the north side of the square was to have been occupied by a great house with a forecourt for the Duke of Chandos. In front of the house would have extended the two Georgian squares and their linking streets falling gently down towards funnel-shaped George Street, the portico of the church and eventually Conduit Street. But with the house hardly begun, the Duke of Chandos and his wife Henrietta, who was daughter and heiress of the Duke of Portland, lost interest (or their money, or both) and retired to Cannons, their country house, and the building of the projected London palace was stopped.

The palace (see the plan opposite) was to have been set back behind the forecourt with flanking blocks of houses and linking curved walls (these last still in part exist) and separated from Cavendish Square by a 'hansome wall and gates'.[1] The architect was John Price; we reproduce his elevation of the palace. On the continuation of the axis behind the house stretched a long formal water, Marylebone Pond. This great sheet of water, some 450 yd. long, has long ago been filled in and forgotten, though at one time it was a popular rendezvous of Londoners, much as is the Serpentine today. Still farther away, and forming a prospect from the palace, were the open fields and the villages of Hampstead and Highgate on their hills.

[1] *London and its Environs described*, 1761.

The bridge closing the axis of the vista and the Madonna and Child by Jacob Epstein. The figures are in cast-lead with haloes of copper gilt

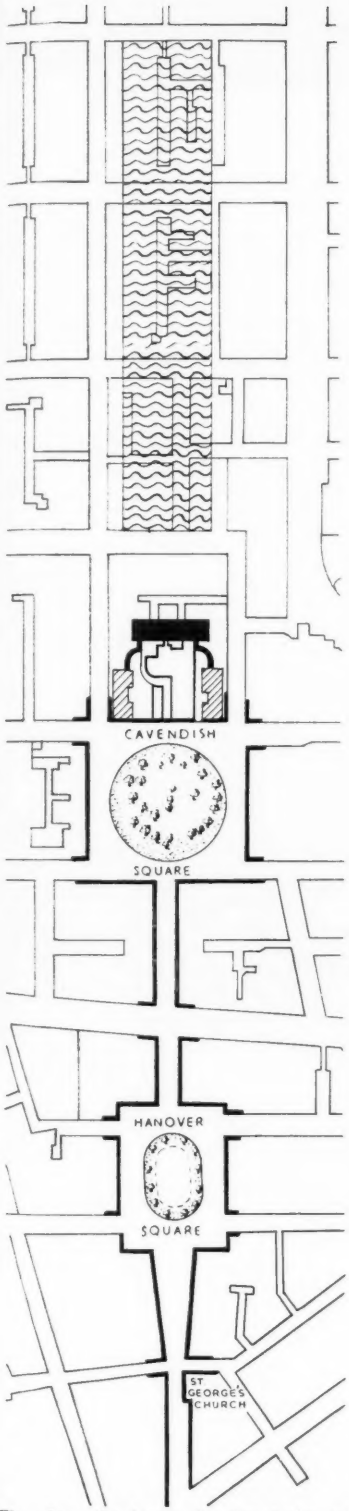
How this axis across the two squares came to be laid out is uncertain. Mr. John Summerson[2] says that Hanover Square, as its name implies, was a Whig creation, some of the houses being occupied by Queen Anne's generals. But the north side of Oxford Street (or Oxford Road as it then was) was part of the Cavendish–Harley estate and purely Tory territory. The axial layout was therefore almost certainly not the work of one man.

After the Duke abandoned his palace, the site remained unused for some 50 years. In the 1760's a Mr. Tuffnell acquired it and built as a speculation four houses with Portland stone fronts and a Corinthian order. These houses, incidentally, appear from the square to be two houses. On the axial line Mr. Tuffnell left an opening giving access to a mews.

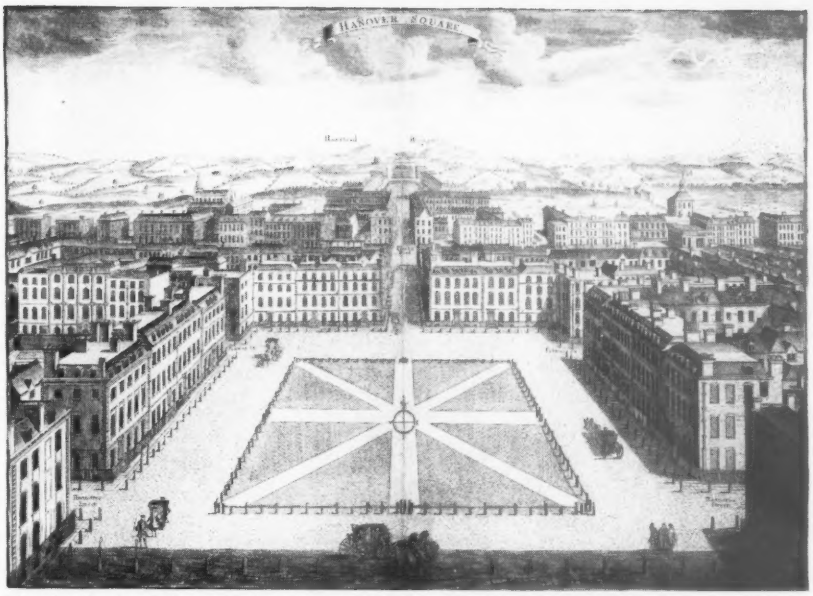
[2] *Georgian London.*

Three of the houses are now owned by the Convent of the Holy Child Jesus, a teaching order. In making good the war damage to their property, the community were advised by their architect to have the opening to the mews spanned by a bridge. Mr. Osman, realising the significance of the site and knowing that trees do not last for ever, so that one day the vista may be reopened, grasped the opportunity to co-operate with a sculptor to produce a work of art which would terminate it worthily.

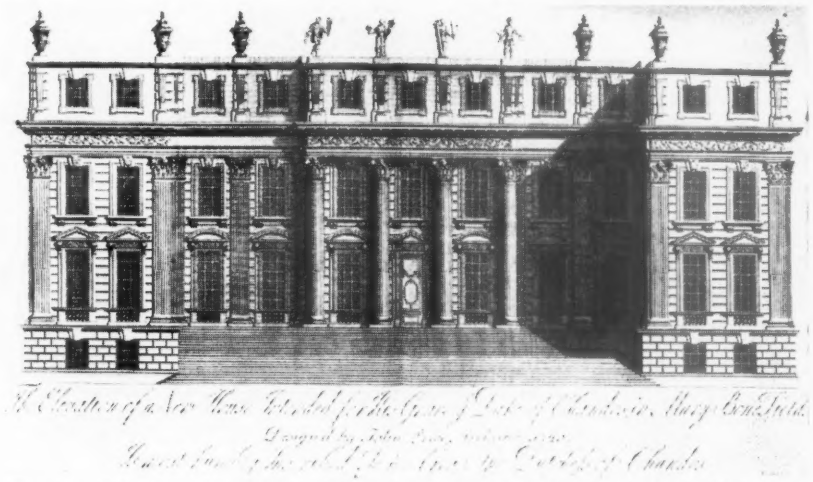
The community approved Mr. Osman's proposal for the bridge, as it enabled the three houses to be replanned horizontally and as a whole, but were advised that they could not spare more than £500 for the sculpture. Mr. Osman therefore approached the Arts Council, who contributed a further £500. This enabled Mr. Epstein to begin work. A public subscription list was also opened for the Cavendish Square Group which raised £1,000. This fund is still open



The vista, the house for the Duke of Chandos and Marylebone Pond marked on a tracing from the Ordnance Survey.
Crown copyright reserved



The vista in the 18th century looking from St. George's church across Hanover Square, 'Tiborn Road' (Oxford Street) and Cavendish Square, with the hills of Hampstead and Highgate in the distance. *From a print by Sutton Nicholls, dated* 1754



Elevation of the house for the Duke of Chandos, designed by John Price in 1720, which was to stand on the north side of Cavendish Square within a forecourt. The house was partly built when the Duke abandoned the project. *From a drawing by John Price, engraved by H. Halsbergh*

because the work is not yet fully paid for. We understand that donations would be welcomed.

Mr. Epstein enthusiastically undertook the work without any guarantee that he would be paid for it. He was given complete freedom of choice of subject and he it was who decided that the work should be a Madonna and Child. He and the architect together evolved a design in which sculpture and architecture would combine and be complementary. According to classical tradition the sculpture would have been placed in a niche, but Mr. Osman stipulated that a modelled group should project itself forward and upwards so that it would seem to float in space against the background of the stone wall of the bridge. He also stipulated that the material should be cast lead, which contrasts strongly with the creamy Portland stone.

The making and the fixing of the figures is a technically interesting, though separate story. The process of casting the figures in lead was in the hands of Mr. C. A. Gaskin of the Art Bronze Foundry, Fulham Road. The designing of the bronze armature so that the lead is everywhere properly supported was shared between the architect and Mr. S. D. A. Saunders of Messrs. Stoner and Saunders of Paddington, the cast lead experts, who also advised on the lead technique and assembled the group. The armature consists mainly of a series of

Above: looking down on the figures from the roof of one of the flanking houses. Right: the figures in detail. They were cast in sections from a plaster model by Jacob Epstein and are supported by a lead-covered bronze armature

lead-covered rings which are incorporated into the structure of the wall. These are triangulated together and pick up a series of bronze lugs, cast into the body of the group. The lead for the figures—three tons in all—came from the old cast lead gutters of the houses. The haloes are of copper gilt, the ancient mercurial process which melts the gold into the copper having been used by Messrs. W. Pairpoint & Sons of Soho, under the direction of Mr. Philip Popham of the Royal College of Art. The builders were Norman & Son.

The stone, a roach Portland, for the masonry is from the same quarry as that of the original houses. The Bath and Portland Stone Firms were able from their records to identify the quarry, and although it had fallen out of use they reopened it specially. The Corinthian capitals were carved by three young sculptors; Mr. George Swaysland, Miss Bridget Wreford and Mr. David Wynne.

When the bridge was designed, it was discovered that there is a 5-in. difference in level between the houses on each side of the mews entrance. This difficulty was overcome by raising one parapet 2 in. and lowering the other by the same amount and taking up the odd inch in the bridge itself by giving the whole of the masonry of the bridge a slightly tilted upward curve.

The work has attracted remarkably little public attention in spite of the fact that publicly placed sculpture is a comparative rarity in these post-war days. But when the existing trees decay, and if they are replaced by an axial avenue, then the vista will again be revealed and the value of the sculpture and its placing may perhaps come to be better recognised.

In a letter to THE TIMES, published on 20 May, Sir Kenneth Clark, Lord Crawford, the Earl of Rosse and Mr. John Rothenstein appealed for funds for what they termed 'a work . . . of arresting beauty and dignity, entirely appropriate to its setting, and . . . one of the finest pieces of sculpture permanently exhibited in London. Donations should be sent to the Cavendish Square Group Appeal, c/o Barclays Bank, 4 Vere St., W.1. Cheques should be crossed 'Barclays Bank'.

General view of the bridge linking the houses on the north side of Cavendish Square

Book Reviews

The Architect in Practice, by *Arthur J. Willis* and *W. N. B. George*. [Law chapters by *D. Grant* and *D. Kemp*.] 8½ in. xii + 260 pp. Crosby Lockwood. 1952. 18*s*.

The authors of this book have been at pains to set out clearly the duties required of an architect, and the result of their collaboration should be of great assistance to architectural students and, as the Introduction says, 'perhaps to the less experienced practitioners'.

The information required by a quantity surveyor in order to prepare bills of quantities may cause surprise, but the reasons given for the complete drawings and particulars which should be supplied by the architect are convincing. The architect must be given the time in which to do his work properly, and a client should be made to understand that to start building on an incomplete design from which quantities have been taken out can only result in delay in actual building and in extra cost. Further, the R.I.B.A. Scale of Charges provides for the detailed information required for the preparation of quantities, and if a scheme is abandoned before a contract is entered into, incomplete drawings and particulars would not qualify for the appropriate fee at that stage.

The chapters on the law in relation to the architect and to building contracts are based on decided cases, and the decisions depend on the facts. An architect is not qualified to give legal advice and it would be unwise to give any advice in such matters. The client's solicitor is the proper person to consult.

The chapters dealing with contracts, specifications, approvals and controls are useful guides in such matters, and the notes on the writing of a specification where quantities are not part of the contract are a valuable reference.

The Code of Professional Practice of A.R.C.U.K. is referred to, but the R.I.B.A. Code of Professional Practice seems to have escaped the authors' attention. There are differences between the two Codes in relation to house and estate agency, and to the use of the affix where an architect is allowed to be a director of a company.

The importance of making the Scale of Charges the basis of an architect's employment cannot be too often stated and it is very properly referred to in this book. The diffidence of architects in acquainting their clients with the appropriate fees can lead to misunderstanding and often to an action at law.

In Appendix 1 at p. 246 is given an architect's specimen account in accordance with the R.I.B.A. scale of charges. While the total amount arrived at is correct, it would be better to put the charge of £21 for the survey of the site immediately after the percentage charge. Both percentage and survey charge are taken into account for the purposes of the surcharge as they are included in clause 2 of the scale.

This volume should be studied by architectural students during the 12 months' office experience required before sitting for a professional practice examination. It will teach them what to look for in the practical or business side of architectural practice, and enable them to face an examiner in that subject with more confidence.

C. W.

Scandinavia. Sweden, Denmark and Norway, by *Eric de Maré*. (Countries of Europe series.) 8½ in. x + 252 pp. incl. pls. and maps. Batsford. 1952. £1 1*s*.

The author of this book, who is of Swedish blood and of partially Swedish education, sets out to give a clear picture in one short volume of Sweden, Denmark and Norway. And there is no doubt that he succeeds.

The visitor to Scandinavia too often arrives on those northern shores for the first time uninformed, and ignorant of his new surroundings. This book provides a most enjoyable corrective to this.

It has been divided into three parts, describing Sweden, Denmark and Norway separately. This makes it possible to concentrate on each of the three countries as a separate national entity. And he who has never been to Scandinavia can scarcely realise how different they are.

The book is well planned (for it is written by an architect!): each of the three countries is introduced by a chapter on 'Land and Livelihood', accompanied by a map. The reader orientates himself by the map, and is led on through the clearly-written description of the country's salient features by finely-selected photographs of buildings, sculpture and landscape, which are so often missed in the drier type of official guide. The second chapter on each country gives the essential outline of 'History and Heritage', without which knowledge the traveller might as well stay at home; and after this there follow chapters on individual towns and buildings, which serve as recommendations to the would-be visitor on what to go and see.

The book gives an outline of geography, history, art and architecture, and, in the last chapter, 'The Proper Study', notes on 'man' in the three countries, showing and explaining how different the Danes, Norwegians and Swedes are one from another.

This is a book to read *before* a visit to Scandinavia, to acquire in the pleasantest possible way all the essential knowledge for the deeper enjoyment of these countries, and of the architecture they have produced.

The only drawback of the book is perhaps that this fascinating armchair voyage might serve (at 21*s*.) as a substitute for the more expensive experience of a trip to the north.

A. THOMPSON

Modern Hospital Planning in Sweden and Other Countries, by *Gustaf Birch-Lindgren*. (Swedish Institute for Cultural Relations.) 9¾ in. × 7¾ in. 112 pp. incl. pls. and pp. of illus. text illus. Stockholm: Medéns; Lond.: Constable. [1951.]

In just over 100 pages, of which a good many are devoted to illustrations, Mr. Birch-Lindgren has recorded his conclusions on modern hospital planning. These are worthy of very close attention, for Mr. Birch-Lindgren is an architect of international reputation in the hospital world. He is also an artist and a writer capable of clear and concise exposition. Mr. Burnett Anderson 'is responsible for the final form of the text' and, presumably, for imparting to it an American flavour.

The author's standpoint is that of a busy and successful architect primarily interested in the solution of problems as they exist in Sweden, but very much alive to all that has gone and is going on in other countries, particularly America. He is not and has no cause to be backward in illustrating a good deal of his own work, for it is hard to find a better way of explaining a subject than to say 'here are problems with which I was faced, there are some examples of other solutions of related problems, and this is what I did.'

The subject is displayed in a general introduction and eleven chapters full of meat and in some cases provided with a useful summary of conclusions. The warning is sounded that medical progress, social evolution and increase in life expectancy are producing a constant increase (irrespective of population growth) in the number of patients in, or desiring or requiring to be in, hospitals. As in all the Western countries, non-producers expect more and more from producers relatively fewer in number who themselves expect a higher standard of living and leisure.

The author seems to assume that this constant expansion of the hospital services on the best Swedish–American–Swiss models will always be possible because they are paid for by the State, and that medical, technical and nursing staff will increase as required. On this not necessarily warrantable assumption he has, however, emphasised the need for economy within the conditions deemed necessary.

It would have been interesting to have had from Mr. Birch-Lindgren an extra chapter dealing with the not improbable situation in which less money for construction and maintenance and diminished staff are set against more patients.

Is the 1-, 2-, 4- or perhaps 6-bed ward layout the only answer? Can the fully equipped hospital be reserved for short-stay patients only, letting them pass on to much simpler and less expensive convalescent hospitals? Or will partial nursing by relatives (as in Italy) or supervised home nursing have to be considered?

In the chapter dealing with the evolution of the modern hospital the author does rather less than justice to the British contribution. Florence Nightingale gets no mention, and the typical pavilion hospitals are attributed to Germany and said to be copied in England, whereas pavilion-type hospitals like St. Thomas's and many others long antedate any of the German examples mentioned. Nor does he refer to the 'snowflake' plans advocated by Jean Walter, of which the embryo is to be found in Waterhouse's University College Hospital. This type plan has, incidentally,

returned to Europe via America, and has been adopted for the rebuilding of a famous London hospital.

One of the most interesting of recent hospitals, the Kantonsspital, Zürich, by Haefeli, Moser & Steiger and Dr. Fietz, is also by-passed. Its pairs of intercommunicating 8-bed wards necessitate structural projections which depart from streamlined rectangular forms at present fashionable, but it does represent almost the only serious attempt to reduce nursing costs and provide a better social unit than the 4-bed ward of the now almost standardised American-style hospital.

In Chapter VI Mr. Birch-Lindgren refers to the saving that may be, through equipment, achieved by the elimination of just one maid. Her wages, capitalised at 3 per cent., correspond to a capital of 100,000 kr., or 10 per cent. of the total cost of a hospital costing 1 million kr. We would like to be told a great deal more about the nursing costs in a 4-, 2-, 1-bed ward hospital, as compared with the old-fashioned large ward hospital. What is quite certain is that there must be a considerable number of single-bed wards in any satisfactory nursing unit, but there is no magic in the number 4. The investigations of the Nuffield Trust may shed some light on this matter, and we would do well to question the conclusions of the Swedish–American school.

With the author's discussion of the programme for the construction of a hospital there can be no disagreement—among architects at least.

The need for clarity in a statement of requirements gets its proper stress: the pitfalls which may arise are exposed, and words of wisdom are spoken on the methods by which misapprehension on the part of the user as to what he is going to get may be avoided. Of the arrangement in which an architect not versed in hospital planning becomes the executant of the ideas of a 'hospital consultant' he remarks: 'This has proved to be an unsatisfactory solution.'

Because the author provides actual figures of cost as well as sound generalisations, the chapter on the modernisation and expansion of old hospitals is of great value. The costs of renewing all the technical installations of an old building would, he considers, equal about 40 per cent. of the cost of a new building of comparable content, but to this must be added, almost inevitably, structural alterations and renewals which might bring up the expenditure to 50–70 per cent. or even more of the new building figure.

The advisability therefore is stressed of using old buildings for purposes which can be served by a lower standard of mechanical equipment with little alteration, and of adding a brand-new building where the reverse applies. And this is all too likely to be the most usual condition in this country.

Mr. Birch-Lindgren's book is clear, concise, and not overloaded with detail. In the study of hospital planning it could form an excellent introduction to the newcomer in that field and provide a stimulating refresher course to the old hand.

JOHN MURRAY EASTON [*F*]

Giovanni Battista Piranesi, by *A. Hyatt Mayor*. 11 in. × 8½ in. v + 41 pp. + pls. New York: Bittner. London: Allen & Unwin. 1952. £4 4s.

Interest in Piranesi and his work continues to grow and the considerable list of books about him has recently been augmented by a work from the U.S.A. by Mr. Hyatt Mayor, Curator of Prints in the Metropolitan Museum, New York.

This finely-produced book gives a bird's-eye view of Piranesi's art, being illustrated by 138 plates arranged chronologically and including examples in his various manners. Early works are represented by the breathtaking *Carceri* (mostly from the rare first state) and by that most enchanting series of small oblong etchings called *Archi Triumphali*: both of these series were done when he was still in his twenties. His lifework, by which he is chiefly known, *Vedute di Roma*, is represented by a good selection from the 137 plates that comprise this wonderful series, and there are reproduced typical examples of the meticulous archaeological drawings made to bolster up his fanatically held theory that Greek art was originated by the Etruscans. Prominence is given to his original designs for chimney-pieces and furniture based on antique styles, which, a generation later, were to have so powerful an influence on the Empire style. In addition to the etchings Mr. Mayor has reproduced a number of original drawings by Piranesi.

Writing more than a generation ago, Professor A. M. Hind, that great authority on Piranesi, remarked on the curious fact that although Piranesi must have made thousands of drawings, very few were then to be found in the various national collections. Since then, however, many have come to light and some of these are reproduced in this volume, including sketches for his only executed building, *Santa Maria Aventina*, with drawings of details of ornament printed opposite photographs of the actual work. There is also a fine sectional drawing through a proposed new apse at the east end of the church of St. John Lateran. Mr. Mayor mentions that a book on Piranesi's drawings is to be published shortly from the pen of Mr. Hylton Thomas: this should be of much interest to students of this great architectural draughtsman.

The plates are preceded by some 40 pages of text, including an excellent short "Life" and a selection of critical appreciations by writers so diverse as Horace Walpole and Joseph Pennell, and there is a short chapter giving some brief hints to collectors.

In conclusion a sentence from a letter that Piranesi wrote to his sister is worth quoting; he said that he would never return to Venice but 'that if he had to choose a home it would be London, as the English were the only people who really cared about the Arts'.

GRAHAME B. TUBBS [*F*]

Barbara Hepworth. Carvings and Drawings. [Text by *B. H.*] 11½ in. × 9½ in. xvi — var. pp. + pls. Lund Humphries. [1952.] £3 3*s*.

Messrs. Lund Humphries have produced a comprehensive review of the work of Barbara Hepworth, with over 200 illustrations. It constitutes an admirable attempt to present a complete picture of the development of an artist's mind through the medium of her work. The picture is elaborated by the six chronological notes written by Miss Hepworth, but as Sir Herbert Read says in his introduction, no such picture can be complete while the artist is still living and working, and there is no doubt that the development will continue.

The illustrations are excellently reproduced, but even so, fall short of the works they illustrate, for no sculpture can be fully appreciated from the study of a two-dimensional photograph. On the technical side, Miss Hepworth's supreme virtues are her study of her material and her perfection of finish. In looking at the drawings, one should always remember that they are primarily studies for sculptures.

Miss Hepworth's appeal to the public at large has been restricted through two causes, neither of which is really her fault. Outside the limited circle of those who specialise in art, the Victorian tradition that all works of art must convey some 'message', usually by allegory, dies hard, and many people look at her work expecting it to convey a Victorian message. If it is viewed purely for its aesthetic appeal the matter becomes different, and again Sir Herbert Read has given the answer in comparing her work with Henry Moore's, when he contrasts beauty with power. The second cause of the limited appeal is the recondite jargon, used by many critics, which discourages the less self-assured. They get the feeling that it is all a mystery with which their small fund of learning cannot cope. This has been avoided in the book. It would be well if more people applied the simpler tests from classical times of whether a work of art appealed to the senses or not, and in this connection the hand sculptures are worth mentioning. These are small pieces of a shape and texture which give pleasure in being handled. Does one again detect a Victorian prejudice that such a pleasure is slightly immoral?

How is Miss Hepworth's sculpture to be related to architecture? It has been said that the increasing use of large plain surfaces in modern architecture demands some relief by sculptural treatment. Miss Hepworth's style of treatment and mastery of material makes her work peculiarly suitable for this application. This is a book on which architects would do well to spend three guineas and keep nearby for diversion in the regrettably few idle moments in their present regulation-ridden lives. W. E.

Architectural Principles in the Age of Humanism, by *Rudolf Wittkower*. 2nd ed. 8½ in. xi + 144 pp. + 44 pls. text illus. Tiranti. 1952. £1 5*s*.

Students of architecture have reason to be grateful to Alec Tiranti for publishing a

new and cheaper edition of Professor Wittkower's learned treatise which was so well received on its first appearance in 1949.

To describe this as a companion volume to Geoffrey Scott's famous *Architecture of Humanism* implies no mean compliment. Yet these two books are supplementary to one another; to a considerable extent they cover the same ground and reveal a similar combination of scholarship, exact reasoning and mastery of the English language.

The argument is in four sections. In the first, which deals with the Centrally Planned Church, the author corrects the impression conveyed by Ruskin, Pugin and others that the ecclesiastical architecture of the Italian Renaissance was 'pagan' in character. On the contrary, the harmonies of composition so carefully contrived were conceived to be a reflection of a divine ordinance. The second section, entitled 'Alberti's Approach to Antiquity in Architecture', reveals in a fascinating way the various stages by which this great master, while revering past examples, extended the repertory of the classic style. The third section, an analysis of the essential characteristics of Palladianism, is based on a study of examples of Italian villas, palaces and public buildings of the 16th century, while the last section is a commentary upon the Renaissance theory of proportion in its relation to music and mathematics, which theme had already been introduced in previous parts of the book.

The author concludes with quotations from aesthetic theorists of a later period who have found reasons to reject these analogies between architecture, music and mathematics. Professor Wittkower leaves the problem of proportion unsolved and commends it to the attention of the younger generation of architects who, however, in company with their elders, will have much to learn from his admirable survey of Renaissance examples.

The book is elegantly produced, with copious illustrations.

A. TRYSTAN EDWARDS [F]

Cheltenham, by *Bryan* [*D. G.*] *Little*. (British Cities series.) 7¼ in. 127 pp. incl. pls. Batsford. 1952. 9*s.* 6*d.*

There has long been a need for a book on the architecture of Cheltenham and Mr. Little has now filled the vacuum admirably. In the modern spate of popular architectural books there has been frequent passing reference to the Regency villas of Cheltenham linked with the name of John Buonarotti Papworth, but Mr. Little is the first to put this association in its true perspective.

His approach to the problem of authorship and responsibility has been fair and unbiased. He has not blown the Papworth legend sky-high. Credit has been given to Papworth where credit is due, for the lay-out and planning of a large part of the town, for the design of the Montpellier Rotunda and for being the inspiration of many local builders. Perhaps he might have been more definite about those terraces in Lansdown known to be by Papworth from his drawings in the R.I.B.A. Library, as indeed he is about the Royal Well Terrace and that on more slender evidence. Incidentally it is perhaps not surprising that Mr. Little could not find Papworth's house for Dr. Shoolbred, as it has been so much altered in Victorian times.

The other architects of Cheltenham, both Regency and Victorian, have now received more attention than ever before, though we would still like to know more about Forbes, and how he acquired the very great scholarship evident in the Pittville Pump Room, if he was purely a local man. Nor does Mr. Little mention Underwood's association with Soane which was established by the late Mr. A. T. Bolton's *Life and Works of Sir John Soane*.

Mr. Little admits in his Preface that his cannot be the final word on the story of Cheltenham's development; but he is quite right to claim that he has brought Cheltenham nearer to Brighton in the degree of its architectural revelation. His book is thoroughly readable, of convenient size and packed with admirable photographs.

DAVID VEREY [A]

Design and Decoration in the Home, by *Noel Carrington*. 9¾ in. 144 pp. + iv pls. (coloured). text illus. Batsford. 1952. £1 10*s.* This book is a revision of a previous work on the same subject, now out of print, and is written mainly as a guide to intelligent redecoration and refurnishing by the layman. It suggests ways of improving existing accommodation rather than the interior decoration of entirely new work, although many of the points made hold good in either case. The author confines himself to examples of elements of good design rather than whole schemes, and almost entirely leaves out the question of colour; he divides the book into ten sections which range from Living Rooms to Table Ware, and Bedrooms to Wall and Floor Coverings.

With so comprehensive a subject it is impossible to deal deeply or at length in a book of this type, and Mr. Carrington contents himself with a short introduction to each section and largely lets the illustrations speak for themselves. In fact, excluding title-pages, etc., there are only 23 pages of text in a book of 144 pages, the balance being made up of well-produced illustrations of textiles, wall-papers, furniture and hardware of a generally high standard of design, most of which are available in this country and are in the shops at a reasonable price. The author, being a member of the Council of Industrial Design, has been able to select many of the photographs from the Council's reference library.

The typography is good, the book is well set out and there is a comprehensive index.

BRENDA P. ROYLE [A]

The Franco-British Union of Architects

Annual Meeting, Rouen, May 1953

THIS YEAR'S ANNUAL MEETING of the Franco-British Union of Architects took place in France, with Rouen as centre, from 16 to 18 May. In order to meet the difficulty which existed in the early part of the year of planning a trip within the £25 limit for foreign currency it was decided to utilise one of the British Railways week-end cruises to Rouen. This proved an enjoyable arrangement but had the disadvantage that the time spent with the French members was limited to two days.

The British party, headed by the President, Sir Patrick Abercrombie, arrived at Rouen at about 4.30 p.m. on Saturday 16 May and were there met by members of the French section. A visit was made to the Cathedral, where Mr. Chauvel, a French member, explained the work of restoration now in hand to repair the considerable war damage. Later in the afternoon the French members were the guests of the British at a cocktail party on board the S.S. *Falaise*, and this was followed by dinner at a restaurant in the town.

The next day, Sunday 17 May, an early start was made for a series of visits to buildings of architectural interest in the district. These included the church of St. George at Boscherville, an interesting example of early Gothic which has served as a model for many of the Gothic revival churches in England. Here the party had as a guide Mlle. Chirol, who also gave the history of the remains of the Manor of the Abbey of St. Armand at Boos, where there is a fine circular pigeon cote, faced with mediaeval glazed bricks. The next stop was at the ruins of the Abbey of Fontaine-Guérard. Here the party were received by the Curé of Rosay, M. l'Abbé Bretocq, a distinguished archaeologist, who gave a most interesting talk on the history and architecture of the building.

This was followed by the 'official' lunch, given by the French Section at Lyons-la-Forêt. Then came the Annual General Meeting, at which M. Albert Schneider, Vice-President, founder member and Honorary Secretary of the French Section, was unanimously elected President for the session 1953–4. Mr. H. S. Goodhart-Rendel, Past President R.I.B.A., was unanimously elected as Vice-President for the session. The officers of the Union are now as follows:

President, M. Albert Schneider, S.C., S.A.D.G. *Vice-President*, H. S. Goodhart-

Rendel, M.C., Mus.B. [*F*]. *Secretary-General*, H. P. Cart de Lafontaine, O.B.E., T.D., M.T.P.I. [*F*]. *British Committee:* Mr. Goodhart-Rendel and Col. Cart de Lafontaine are *ex officio* committee members, so also is the Past President of the Union, Sir Patrick Abercrombie, M.A., Hon.D.Litt., F.S.A., M.T.P.I. [*F*]. Other members are P. J. Harland [*F*] (Chairman), Professor H. O. Corfiato, F.S.A., S.A.D.G. [*F*], Lt.-Col. O. Campbell-Jones, T.D. [*F*], J. Murray Easton [*F*], W. A. Eden [*F*], R. E. Enthoven, A.A.Dipl. [*F*], A. A. V. Montagu [*F*] and G. A. W. Brandreth [*A*] (Hon. Secretary).

Professor Corfiato and Sir Patrick Abercrombie were unable to be present at the Annual General Meeting, having gone to Paris to represent the Union at the celebrations in honour of the 200th Anniversary of Gabriel. In Professor Corfiato's absence his report on the annual competition between students of the French National School and of the British schools of architecture and the proposed travelling bursary for a student of the École des Beaux Arts to spend three months on a study tour in Great Britain were deferred until the next Annual General Meeting. The Hon. Secretaries of the French and British sections reported that the subscriptions received or promised for this fund amounted to Frs. 44,500 and £64 9*s.* 10*d.* respectively.

It was decided after discussion to refer to the British Committee the question of the place and date of the next Annual General Meeting to be held in Great Britain in 1954.

Practice Notes

Edited by Charles Woodward [*A*]

IN PARLIAMENT. Housing. Softwood (Cement Savings). Asked if he would give an estimate of the saving in the use of cement which would be effected by making softwood freely available for house building, the Parliamentary Secretary to the Ministry of Housing and Local Government replied: The saving on a house could be about 10 cwt. (14 July 1953.)

Improvement Grants. Asked what action he proposes to take to secure a greater use of the improvement grant provisions of the 1949 Housing Act, the Parliamentary Secretary to the Ministry of Housing and Local Government replied: My right hon. Friend believes that the provisions need to be given greater publicity, but he is deferring action until he has been able to consider suggestions he has received that the provisions themselves also need improvement. (14 July 1953.)

Amenity Buildings (Licences). Asked whether, in view of the applications which have accrued for licences for amenity buildings to meet the social needs of the people in various parts of the country, he will now consider some measure of relaxation of the ban imposed on this type of building, the Minister of Works replied: The current Control of Building Operations Order expires at the end of this year. Before I make a further Order all aspects of building control will be carefully reviewed. (14 July 1953.)

NATIONAL SCHEDULE OF DAYWORK CHARGES. Holidays-with-Pay and Public Holidays Contributions. The following amendment operates from the calendar week beginning on 6 April 1953:

In Note (i) of Schedule A of both Part 1 and Part 2, for '4 per cent' read '5¾ per cent.'

The increase in the percentage chargeable for holidays-with-pay and public holidays contributions arises from the granting of a second week's paid holiday and the consequent increase, which took effect from early in April 1953, in the weekly contribution paid by the builder.

Copies of the Schedules embodying this amendment are obtainable from the R.I.C.S., price 1*s.* each.

MINISTRY OF FUEL AND POWER. The Government loan scheme for fuel saving devices has been amended and a leaflet giving full details will be available from the Ministry headquarters or from its regional offices. This will give an idea of the categories of equipment eligible for loan, and the formalities in respect of loans will be simplified. Building licences will be necessary, but will be easily obtainable. The Industrial and Commercial Finance Corporation Ltd. will deal with the financial transactions involved.

Note. The loan scheme was referred to in the June 1952 issue of the JOURNAL at p. 301.

MINISTRY OF HOUSING AND LOCAL GOVERNMENT. The financial provisions of the Town and Country Planning Act, 1947, and land transactions of local authorities and statutory undertakers are referred to in Circular 41/53 dated 2 July 1953.

As development charge has now been abolished on projects begun on or after 18 November 1952 and the obligation to distribute £300 million in respect of loss of development has been cancelled, the Government propose that, instead of making payments in 1953 in connection with all claims admitted by the Central Land Board, payments should be made only when loss is actually sustained as a result of planning decisions or acquisition by a public authority. It will not be possible until the next Parliamentary Session to introduce the full amending legislation, but in the meantime it is necessary to amend Ministry of Health Circular 129/48. The basis on which transactions should take place as from 18 November 1952 is then set out in Circular 41/53, unless an authority was otherwise committed before that date. Further alterations will be required when the full amending legislation has been passed.

Contributions under the Housing Acts 1946 and 1952. Circular 44/53 dated 7 July 1953 states that Exchequer subsidies and rate contributions for new houses built by local authorities in England and Wales are to remain unchanged, and will continue to be payable in respect of new houses built before 30 June 1954.

The principal subsidies are:—

General Standard Subsidy. Exchequer £26 14*s.* 0*d.* per house per year for 60 years; local authority contribution £8 18*s.* 0*d.* per house per year for 60 years.

Special Subsidy for Houses for Agricultural Workers. Exchequer £35 14*s.* 0*d.* per year for 60 years; Rates £5 per year (£2 10*s.* 0*d.* from the local authority and £2 10*s.* 0*d.* from the County Council) for 60 years.

Soil/Cement for Housing Estate Roads. Circular 42/53 dated 17 July refers to Road Note No. 15 issued by the Road Research Laboratory entitled 'Specifications for the Construction of Housing Estate Roads using Soil/Cement'. The methods described can be regarded as having passed the experimental stage and are already in use by several local authorities. They have also been used by Government Departments for various Service establishments.

The methods have been found, in general, cheaper than standard road construction practice, to an extent significant in the calculation of house rents. In the mix-in-place method, aggregate does not have to be excavated and brought to the site and the equivalent volume of soil does not have to be carted elsewhere. The amount of cement used is about half that required for the same thickness of mass concrete road slab. The ban on the use of cement for road works still stands, but the Minister would be prepared, through his Principal Regional Officers, to approve a limited number of schemes involving the use of 'soil/cement'.

Copies of Road Note No. 15 are obtainable from H. M. Stationery Office, price 10½*d.* post free, or through any bookseller.

LAW CASE

Official Arbitrator's Award set aside. In the Supreme Court, Dublin, on 25 June the award of an Official Arbitrator was set aside in the following circumstances.

After evidence had been taken at the hearing, the Arbitrator went to the site accompanied by the County Council Engineer but had not invited the other party to the dispute to attend the inspection, or asked his permission to go on the site.

The Chief Justice said that there had been considerable controversy about the manner in which the Arbitrator had conducted the proceedings. Nothing had been found to justify a charge of misconduct against him, but as the Arbitrator was not the choice of the parties to the arbitration it was important not only that justice should be done but that justice should appear to be done. In the opinion of the Court the award should not be allowed to stand.

The award was accordingly set aside. (THE ESTATES GAZETTE, 25 July 1953.)

Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialised branches of research and will willingly answer inquiries.

The Director, The Building Research Station, Garston, near Watford, Herts.
Telephone: Garston 2246.

The Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow.
Telephone: Busby 1171.

The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks.
Telephone: Princes Risborough 101.

The Director, The British Standards Institution, 2 Park Street, London, W.1.
Telephone: Mayfair 9000.

The Director, The Building Centre, 26 Store Street, Tottenham Court Road, London, W.C.1.
Telephone: Museum 5400 (10 *lines*).

The Director, The Scottish Building Centre, 425–7 Sauchiehall Street, Glasgow, C.2.
Telephone: Douglas 0372.

B.S. 476: 1953. **Fire Tests on Building Materials and Structures.** This Standard is a revision of that of 1932. In the new version the loading in the test for load-bearing structures has been reduced to the same value as the design load. The reason for adopting the higher figure of the earlier Standard was that it was considered that the water played into a burning building would saturate the contents and so add to their weight, but in fact such additional loading would be largely offset by the burning of some of the contents. Also the design load would include a factor of safety of at least four, and taking these points into consideration it has been decided that the 1½ design load was unduly onerous.

Another deletion is the water test on all types of construction, owing to the difficulty of simulating the conditions of an actual fire. It is unlikely, for instance, that an encased stanchion would be affected sufficiently seriously to warrant its being played on by a fireman, and if he did so it would probably be only for a moment as he swung his hose from one part to another of the burning contents and combustible building components.

For similar reasons the impact test has been deleted as it is not now deemed to be a satisfactory measure of the weakening effect of a fire. The price of the revised Standard is 4*s*.

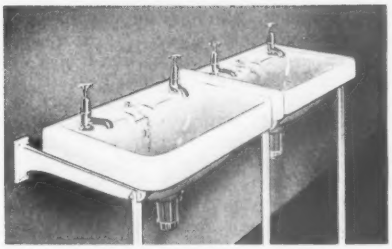
Weather-Stripping. In the second report of the Ministry of Works Advisory Council on building research and development, mentioned in last month's JOURNAL, weather-stripping was one of the subjects on which research was approved by the Council. It is common knowledge that air from outside finds its way into a room through spaces around closed doors and windows, but in a leaflet Messrs. British Hermeseal Ltd. give some figures which are surprising, even startling; they are the result of many tests made on a number of wood double-hung sash windows carried out by the American Society of Heating Engineers in collaboration with the American Institute of Architects and the U.S. Bureau of Mines.

Taking a window 5 ft. 2 in. high, 2 ft. 8 in. wide, with a gap and clearance around the window of about ⅛ in., the rate of infiltration in cubic feet per hour per foot of gap is 49·1 with a wind velocity of 5 miles per hour and 106 when it is 10 miles per hour; indeed the rate of leakage increases almost exactly in proportion to the wind velocity. Assuming that the length of gap around the window is 18 ft. at a wind velocity of 10 miles per hour the total infiltration will be $106 \times 18 = 1908$ cubic feet per hour. Weather-stripping reduced the rate to 14·7 cubic feet per hour, with the same wind velocity of 10 miles per hour, so the total infiltration would be 264·6 cubic feet per hour; a reduction of 86·1 per cent. The amount of extra heating required to counteract this influx of course varies according to the weather conditions, but tests in Switzerland indicate that weather-stripping can effect a 20 per cent saving in fuel costs.

As might be expected metal windows show an improvement over wood windows as regards leakage, but even so an American investigation showed that 23 per cent of the number tested had a gap of ⅛ in. or more. Messrs. Hermeseal state that complicated rebated sections have no advantage whatsoever over wide flat rebates with good true-fitting surfaces.

Messrs. British Hermeseal specialise in the installation of weather-stripping; their head office is at 4 Park Lane, London, W.1.

Sources of Information. Realising that it is not always easy for an inquirer to discover all the sources of information on a particular problem the D.S.I.R. announce that a list of sources on a wide range of subjects has been collected by the Sub-Committee for Co-operation in Scientific Research and Technical Development, the sub-committee coming within the Organisation for European Economic Co-operation. The list consists of standard sheets, each being devoted to a particular subject of research, and giving the names and addresses of persons or organisations from whom detailed information may be obtained. The sheets can be studied at, or borrowed from, the Technical Information and Documents Unit, D.S.I.R., at Cunard House, 15 Regent Street, London, W.1.



Messrs. Goslett's new fully-glazed flat-topped basin

The principal subjects of interest to architects are: building materials, economy in usage, protection from fungus and rust, sound insulation, concrete and plaster; prevention of corrosion of steel; economy in use of fuels; conservation of steel and saving by economic design, and use of plastics for plumbing.

A new Lavatory Basin. Messrs. Alfred Goslett and Company Ltd., of 127–131 Charing Cross Road, London, W.C.2, are exhibiting a fireclay lavatory basin that has been specially designed for schools, the point about it being that the whole of the back is fully glazed; the basin can therefore be set clear of the wall and thus does away with any dirt trap, and a wipe with a cloth will keep the back clean. The basin can be fixed singly or in a close-fitting range; in the last case a shaped cover-piece fits over the junctions. The basin is flat-topped and the waste is chromium plated with a light alloy bag trap. Size 22 in. by 16 in. Although primarily intended for schools it is obviously suitable for hospitals, offices, factories and other places where cleanliness is a prime consideration.

Timber Development Association. The increasing activities of the T.D.A. are reflected in the annual report for 1952, recently published. The work of the Association is well known and in consequence the Advisory Service is hard pressed; in 1952 approximately 75 per cent of the time of the staff had to be allocated to advisory designs and the answering of technical inquiries; 1,250 coming from members, 1,500 from Government departments and local authorities, and 1,450 from architects, engineers and builders.

Inquiries received by the Design and Construction Department indicate that there is a potential field for low-pitched timber roof trusses suitable for public and commercial buildings such as schools, hospitals, offices and churches. Therefore type B truss has been designed to accommodate maximum clear spans of 25, 30, 35, 40 and 45 ft., and to be suitable for use with a large number of roof covering materials and also to take ceiling loads and loading due to roof access gangways. The trusses for the four spans are detailed on T.D.A. design sheets Nos. 15, 16, 17, 18 and 19.

Air Cleaning. Although the elimination of dust from the air may seem to be a simple matter, for to most of us dust is just dust and only needs to be filtered, yet it is a subject to which much research has been given; in fact the control of the dust hazard arising from industrial processes is receiving attention both from engineers and the medical profession, and those who have to consider the installation of filtration plants would do well to read an interesting booklet, *Metwul*, published by Messrs. John Yuille (Metal Works) Ltd., of the Hillington Industrial Estate, Hillington, Glasgow, S.W.2, at the price of 5*s*. net.

The booklet begins by explaining that the earth's atmosphere consists of two layers, the troposphere, extending from the surface of the earth up to a height of some 6 miles, and the stratosphere, which is estimated to go up to 125 miles or more. It is the dust in the troposphere which is of most concern to industry, and near large towns and industrial areas it is largely due to the incomplete combustion of coal and it may contain minute crystals of sulphur. This atmosphere dust is deemed to be of two kinds, one being of 'temporary' and the other of 'permanent' impurity. The first kind includes particles of a diameter of 1 micron and upwards and these settle fairly rapidly, but the permanent impurity kind of particles, being less than 1 micron in diameter, tend to remain in suspension for a sufficient length of time to travel considerable distances; their chief constituents are probably salt crystals formed by the evaporation of sea spray, smoke particles from industrial and domestic fires, forest and prairie fires, and volcanic and cosmic dust. Some idea of the minuteness of these particles will be gathered when it is remembered that a micron is 1/25,400 of an inch.

Although we give the general name dust to particles that are small enough to float in air for some time they may be classified under four heads: those that may constitute an explosive hazard to life and property; those that have an economic recovery value; those that are merely a nuisance, and, lastly, those that have an effect on health. In the explosive group dextrine, starch, cocoa and especially sugar dusts are the most dangerous, the lowest ignition temperature for starch being 640° C. (1184° F.), cocoa 620° C. (1148° F.) and sugar and dextrine 540° C. (1004° F.), and a match flame may be sufficient to cause ignition. Concentration of dust in the air may be kept within safe limits by adequate ventilation, but there may be positions where the air is relatively stagnant, such as roof beams and girders, and dislodgment may create dangerous conditions, therefore the safest way is to install casings and trunking so that the dust is drawn away immediately it is formed at its source, such as a grinding machine. The industrial dusts especially harmful to health are well known; they include those of silica, coal, stone and iron.

Messrs. Yuille have made a close study of dust and have Metwul filters and plant to suit the particular conditions.

The Cowley automatic level

A New Level. We all know what a time it takes to set up a dumpy level correctly, so anything that will simplify the process of taking levels will be of interest to architects, surveyors and builders. A level brought out this year is very easy to use; it is called the Cowley level. It looks rather like a small cinematograph camera, with a viewing eyepiece on top and an aperture in the front divided into two vertically.

Behind the left-hand side of the divided aperture is a system of two fixed mirrors, but behind the right-hand side there are three mirrors, one of which has a pendulum attached to it and therefore this mirror always hangs truly horizontal whether or not the instrument itself is set level. The instrument has a hole in its base and through this it is pushed down over a rod attached to the tripod head and thus can swing round on this axis.

The optical system is so arranged that the optical centre lies in the plane of the supporting rod and therefore the line of sight is always horizontal even if the instrument is not level: in other words the instrument levels itself so far as taking sights is concerned and the need for levelling screws is eliminated.

The 5 ft. graduated staff has a sliding crossbar with a black line painted across it; the crossbar can be clamped and has at the back a central arrow to mark the height. An assistant holds up the staff in the usual way at the appointed station and the instrument is swung round until the vertical dividing line in the front aperture coincides roughly with the vertical centre of the staff. Owing to there being two viewing systems the left-hand half of the crossbar with its black line will appear as above, or below, the right-hand half as seen through the right-hand half of the front aperture; the assistant then moves the crossbar up or down until the two halves coincide. He then reads off the height as shown by the arrow on the staff.

Although it is not claimed that the Cowley level has the great accuracy of a dumpy level it is claimed that readings to within ¼ in. at 100 ft. can be taken, and readings are possible from a distance of 6 in. up to 150 ft.

Extension posts of 3 ft. and 4 ft. can be obtained, also a stand to hold the instrument in positions where the tripod cannot conveniently be used. The price of the level with tripod and 5 ft. staff is £16 and £21 7*s*. for the complete outfit.

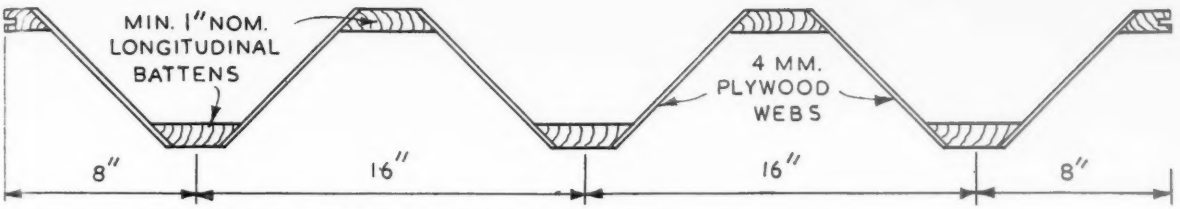
When the level is taken off the tripod the mechanism is automatically locked, thus preventing damage in transport. The instrument is made by Messrs. Hilger and Watts, Ltd., of 48 Addington Square, Camberwell, London, S.E.5.

Non-Ferrous Metals. It is often said by architects that in carrying on their practices they have not time to read all the technical literature that is published on building components; much less can they be expected to note the research work that is being carried on unobtrusively by research associations. For instance, the British Non-Ferrous Metals Research Association are conducting research into the failures of copper domestic water pipes which occasionally occur in some parts of the country. This takes the form of pitting corrosion and has been found to be due to the presence of a carbon deposit on the inside of the tubes and to the absence of an organic substance normally present in small amounts in most water supplies.

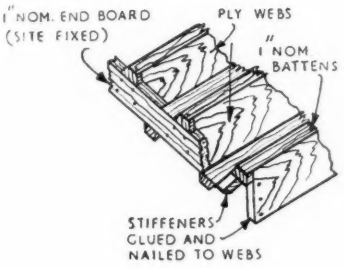
This organic compound stifles corrosion, and if it is absent in the water supply corrosion, once started, can go on unhindered. So far the composition of this compound has defied analysis, but when it has been found it will be possible to add the compound to water supplies and thus check corrosion. Nevertheless, at present it is possible to test for its presence to see whether the water is likely to support the pitting corrosion of copper, given the right conditions for the initiation of corrosion.

This is only one of over 40 researches being carried out by the Association, but when it is completed it should remove one of the undesirable conditions that may lie hidden inside the supply pipes that look so neat in buildings.

Aerodynamics. One would not normally expect to find much of architectural import in a note on the industrial application of aerodynamic techniques, published by the National Physical Laboratory, but in their Notes on Applied Science, No. 2, they deal with the effects of wind on suspension bridges, chimneys, furnaces and flues. With the aid of models and a wind tunnel they show by photographs how architectural features at the top of a chimney may cause the smoke to descend the lee side, because they are too near the outlet. In furnaces and flues the aerodynamic aspects are principally those of the examination of flow distribution and the measurement of very small velocities and pressure differences. The main difficulties are usually associated with high gas temperatures, extremely low gas speeds, variations in temperature, the speed and direction of movement from point to point and the pressure of small particles.



Above: section through a Trofdek unit. Below, left: sketch showing end board



The information contained in the note is necessarily brief, but for fuller information application should be made to the Director of the National Physical Laboratory, Teddington, Middlesex. Note No. 2 is published by H.M.S.O., price 3*s*. 6*d*. net.

Trofdek. The recent Ministerial demonstrations into ways of using less softwood lend interest to a new product originated by Messrs. W. H. Willatts and A. H. Cornwall, of Messrs. W. H. Willatts and Associates, 60 Haymarket, London, S.W.1. It has been given the name Trofdek, and this is an appropriate one because the design employs the trough system.

The building trade is so well acquainted with the technique of laying floors with timber joists at 16 in. centres that Messrs. Willatts thought it well to adopt this spacing in designing their new unit, but their design eliminates most of the wood that would otherwise be used in the joists and employs only wedge-shaped longitudinal battens top and bottom connected by sloping lengths of plywood webs which are glued and nailed to the battens. The ends of the units are closed by end boards which pass between the battens.

The depth of the unit is normally 1/24th of the span, but stock depths are 5¾ in. and 7 in. The width of the standard unit is 4 ft. and this is a multiple of the basic module of 8 in. on which the system has been designed, because although the spacing of the longitudinal battens is 16 in. centres, the sides of the units terminate in half-troughs at 8 in. centres, a dimension that fits in with the present trend towards modular co-ordination as it is applicable to widths of 2 ft., 3 ft. 4 in., 4 ft., 8 ft., 10 ft., and so on.

Standard units weigh about 1·7 lb. per sq. ft., and tests have shown that over a 12 ft. span a unit will bear a load of 300 lb. per sq. ft. before failure occurs. The lightness of the units allows them to be handled by two men, and at a demonstration a roofing area of 220 sq. ft. was covered by two men in three minutes. The units can be used for flooring, walling and either flat or pitched roofs. In pitched roofs the units can be laid either parallel to the eaves or at right angles. In joining one unit to the next timber fillets are fitted into the grooves in the sides of the units.

In most basically non-timber decking systems it is not easy to fix the covering unless timber is incorporated for the purpose, but the timber tops and bottoms of Trofdek units provide a ready-made fixing for floor boards, tiling battens, lathing and other finishings. The troughs also allow services to be laid in them, and holes can be cut in the sloping plywood sides for the passage of conduits.

The system lends itself to good insulation, both thermal and sound, as the troughs can be filled with appropriate material in addition to whatever insulating coverings may be applied to the top or bottom of the units. As an example of the degree of thermal insulation that can be achieved the U-value of ·16 is quoted for aluminium sheeting, ½ in. insulating board and ¼ in. plasterboard applied to Trofdek.

It was mentioned above that the end boards pass between the battens and therefore there is a space between the battens, equal to their depth, which allows air to pass into the troughs over and under the end boards. With suitable provision for intake of air at the bearings this should preclude any possibility of trouble arising from stagnant air and, of course, the timber can be treated against insect or fungal attack if that is thought to be necessary.

It is claimed that up to 60 per cent of timber is saved in Trofdek, compared with equivalent systems, and hardwood can be used instead of softwood.

Trofdek units are manufactured and marketed in the United Kingdom exclusively by Messrs. H. Newsum, Sons & Co., Ltd., of Lincoln, the makers of the Riley-Newsum timber house, described in the September 1952 issue of the Journal.

Demonstration of Trofdek units being laid as roofing

British Standards recently published.

B.S. 1255 : 1953. **Brackets and Supports for Lavatory Basins and Sinks.** Contents: dimensions, weights and finishes for brackets and supports in cast iron, wrought iron, mild steel and brass. Illustrated by diagrams. Price 2*s*. 6*d*. net.

B.S. 1579 : 1953. **Connectors for Timber.** This Standard describes timber connectors of various kinds, illustrated by diagrams. Tables give sizes. Price 3*s*. 6*d*. net.

Notes and Notices

NOTICES

The R.I.B.A. Appointments Department. Members and Students of the R.I.B.A. and the Allied and Associated Societies are reminded that the services of the Institute's Appointments Department are available to employers requiring assistants, and to assistants seeking salaried employment.

Employers are invited to notify the Secretary of vacancies in their offices, giving details of the work to be done, the qualifications required, and salaries offered.

Assistants should preferably call at the offices of the Appointments Department, but if this is not practicable they should obtain from the Secretary an application form, which when completed and returned to the Institute will enable the Department either to send the applicants particulars of vacancies suitable to their qualifications and requirements or submit their names for vacant posts.

Members and Students seeking official appointments should note that normally these are fully advertised in the weekly professional press, and that therefore the Appointments Department do not as a rule notify them to those on the register.

The Institute will also be glad to advise on most matters concerning architectural employment, including overseas appointments.

Classes of Retired Members. Under the provisions of Bye-law 15 applications may be received from those members who are eligible for transfer to the class of 'Retired Fellows', 'Retired Associates' or 'Retired Licentiates'.

The Bye-law is as follows: 'Any Fellow, Associate or Licentiate who has reached the age of 55 and has retired from practice may, subject to the approval of the Council, be transferred without election to the class of "Retired Fellows", "Retired Associates", or "Retired Licentiates", as the case may be, but in such case his interest in, or claim against the property of, the Royal Institute shall cease.

'The amount of the annual subscription payable by such "Retired Fellow", "Retired Associate" or "Retired Licentiate" shall be one guinea, or such amount as may be determined by resolution of the Council, excepting in the case of those who have paid subscriptions as full members for 30 years, and who shall be exempt from further payment. A "Retired Fellow", "Retired Associate" or "Retired Licentiate" shall have the right to use the affix of his class with the word "Retired" after it, shall be entitled to receive the JOURNAL and Kalendar, shall be entitled to the use of the Library, and shall have the right to attend General Meetings, but shall not be entitled to vote. A "Retired Fellow", "Retired Associate" or "Retired Licentiate" shall not engage in any avocation which in the opinion of the Council is inconsistent with that of architecture. Nothing contained in this Bye-law shall affect the rights of persons who at the date of the passing of this Bye-law are members of the classes of "Retired Fellows" and "Retired Members of the Society of Architects" '.

Composition of Subscriptions for Life Membership. Fellows, Associates and Licentiates of the R.I.B.A. may become life members by compounding their respective annual subscriptions. Full details may be obtained on application to the Secretary, R.I.B.A.

Associates and the Fellowship. Associates who are eligible and desirous of transferring to the Fellowship are reminded that if they wish to take advantage of the next available election they should send the necessary nomination forms to the Secretary, R.I.B.A., as soon as possible.

Licentiates and the Fellowship. By a resolution of the Council passed on 4 April 1938 all candidates whose work is approved are required to sit for the Examination, which is the design portion of the Special Final Examination, and no candidates will be exempted from the examination.

Note.—The above resolution does not affect Licentiates of over 60 years of age applying under Section IV, Clause 4 (*c*) (ii) of the Supplemental Charter of 1925.

COMPETITIONS

Redevelopment of Marine Parade, Dover. The Dover Corporation invites architects registered under the Architects' Registration Acts and resident in the United Kingdom to submit designs in competition for dwelling accommodation on a site in Marine Parade, Dover. The site has an area of 6·5 acres, excluding portions of surrounding streets.

Assessor: Mr. Arthur W. Kenyon, C.B.E., M.T.P.I. [*F*].

Premiums: 1,000 gns., 500 gns., 250 gns., 150 gns., 75 gns., 50 gns.

Last day for submitting designs: 10 September 1953.

Conditions may be obtained on application to James A. Johnson, Esq., Town Clerk, New Bridge House, Dover.
Deposit: 2 gns.

Sheffield University
The University of Sheffield invite architects registered under the Architects' Registration Acts and resident in Great Britain, Northern Ireland or the Republic of Ireland to submit, in competition, designs for certain buildings to be erected on sites within the central area of the University, together with a layout and sketch elevations for other buildings also to be located within that area.

Assessors: Sir Percy Thomas, O.B.E., Past President, Mr. F. R. S. Yorke [*F*], and Mr. Gerard Young, J.P.

Premiums: £5,000, £3,000, £2,000.

Last day for submitting designs: 31 October 1953.

Conditions may be obtained on application to: The Secretary, Architectural Competition, The University, Sheffield. Deposit: £2.

Dublin Port and Docks Board: New Head Office Building. The Dublin Port and Docks Board invites designs in competition for a new Head Office Building. The competition is open to all qualified architects who are:

(*a*) Holders of the Degree of Architecture of the National University of Ireland.

(*b*) Members or Fellows of the R.I.A.I.

(*c*) Members of the R.I.B.A. (or allied societies) *who are practising in Ireland.*

Assessors: Mr. John M. Fairweather, Mr. Vincent Kelly [*F*], Mr. Alfred E. Jones.

Premiums: £700, £500, £200, £100.

Last day for submitting designs: 2 November 1953.

Conditions may be obtained on application to the Secretary, Dublin Port and Docks Board, Westmoreland Street, Dublin. Deposit: £3 3*s*.

BOARD OF ARCHITECTURAL EDUCATION

The R.I.B.A. Final Examination June 1953.

The Final Examination was held in London, Bristol, Leeds, Manchester, Newcastle, Edinburgh and Belfast from 17 to 26 June 1953.

Of the 448 candidates examined, 177 passed as follows:—

Passed Whole Examination	116
Passed Whole Examination Subject to approval of Thesis	25
Passed Part 1 only	35
Passed Part 2 only Subject to approval of Thesis	1
	177

271 candidates were relegated.

The successful candidates are as follows:—

Whole Examination

Adamson: R. G.
Aston: S. R. (Distinction in Thesis)
Atkinson: R. I.
Ayshford: A. G.
Baker: G. D.
Baker: M. M. (Miss)
Barnes: C. S. (Distinction in Thesis)
Batliwala: N. B.
Birchall: R. J. (Distinction in Thesis)
Bloomfield: A. J.
*Boulting: K. F.
Bowes: D. W.
Buxton: Leslie
Cawte: J. F. W.
Chard: A. R.
Chrisp: G. W.
Claridge: R. J.
Clark: Donald
Clark: R. B.
Cochrane: T. J.
Crawforth: William
Darlington: Edgar
Davies: W. H.
Edwards: D. G.
Fairbairn: K. S.
Fawcett: E. S.
Fenwick: Colin
Fernley: Clifford
Francis: H. E. S.
*Frost: Kenneth
Geall: R. G.
Gibbs: K. H.
Godfrey: R. M.
Goodchild: J. S. J.
Greene: R. S.
Grillet: C. N. (Distinction in Thesis)
Hacker: G. E.
Hardy: F. C.
Harries: J. J.
Hartley: Brian
Harvey: R. L.
Hay: G. D.
Head: Derek d'E.
Henness: C. J.
*Hewett: P. J.
Higgs: K. G.
Hudson: Gene (Miss)
*Inskip: J. A.
Jamieson: V. C.
Johnstone: P. J. (Miss)
Joyce: D. G.
Kennett: R. A. G.
Kew: G. W.
Krasuski-Wczelik: K.
Leigh: John
Lewis: V. M. (Miss)
Lister: A. G.
Lord-Smith: P. J.
Lyster: C. B.
McGowan: D. K.
McHenry: P. A. L.
McLaren: D. W.
McMillan-Scott: W. T. R.
*Marshall: D. A.
Mawson: C. L.
Maynard: P. L.
Meek: J. E.
Melhuish: R. E.
Mendenhall: R. A.
Meyer: Alfred
*Minchell: C. S.
Mortimer: R. W. A.
Mould: R. F.
*Mountford: J. C.
Murphy: D. Y.
*Naden: F. R.
Neville: C. C. (Distinction in Thesis)
*Newbold: C. J.
Niblock: John
Nicholls: R. L. (Distinction in Thesis)
Nowak: Z. J. (Distinction in Thesis)
Nunan: R. G. P.
Obermeister: Louis
Olive: Dan
*Parker: N. C. C.
Penhey: A. D.
*Pennell: G. R. J.
Petterson: F. E.
Phillips: Ronald
*Pickford: S. G.

Pickford: V. A. (Miss)(Distinction in Thesis)
Pietruszewski: Z. J.
Poniatowski: Antoni
Poole: M. V.
Pryer: R. J.
Read: J. J.
Reid: D. A.
Roberts: C. F.
*Roberts: J. T.
*Robinson: F. A.
Rose: R. T.
*Ross: Alan
*Rosser: E. H.
Rothwell: K. A.
Saillard: K. R.
Schwerdt: J. R.
Seaman: B. J.
Siedlecki: Kazimierz
*Spooner: F. J.
*Stables: J. M.
Starczewski: Henryk
Starzewski: Wojciech
Stepan: Ryszard
Stephens: F. W.
Stephenson: Arthur
Stephenson: Robert
Stokes: R. D.
Straker: E. A.
Swallow: R. W.
Swift: Arthur
Tasker: D. M.
Tempest: J. F.
Thomas: E. R. J.
Tree: Reginald
Tucker: D. W.
*Turner: P. G.
*Turner: R. Y.
Warren: A. P.
Watts: J. A.
Wells-Thorpe: J. A.
*Whatling: A. J.
*Whitcomb: H. F.
Wilcox: J. H.
*Wilczynski: J. A.
Williams: P. E.
Williams: S. D. L.
Willoughby-Thomas: M. B.
*Wilsdon: R. G.
Woolfenden: Brian
Wyatt: R. J.
*Young: J. C. A.

Part 1 *only*

Barber: Philip
Bedford: A. C.
Burnie: R. C.
Cash: G. J.
Chambers: R. T. J.
Cross: J. A.
Donald: H. G. (Miss)
Drew: Rowland
Dukes: E. G.
Edmundson: R. S.
Gobby: R. E. E.
Harris: J. A. G.
Jones: Eric
Lowe: E. J.
Marshall: V. D.
Meldrum: A. F.
Morgan: A. K. W.
Nixon: P. L.
Palmer: Rosemary (Miss)
Paulo: T. K. (Mrs.)
Porter: R. P. R.
Prynn: L. B.
Rappoport: Sydney
Roe: R. K. B.
Ross: A. H.
Salisbury: Frank
Santocka: Irena (Miss)
Seigle-Morris: David
Seward: A. M.
Shawcroft: Brian
Thomas: Howard
Wakeling: W. G.
Wardill: R. F. G.
Woodcock: G. N.
Worts: J. B.

Part 2 *only*

*De Mott: L. T.

*Subject to approval of Thesis.

The R.I.B.A. Special Final Examination June 1953. The Special Final Examination was held in London, Bristol, Leeds, Manchester, Newcastle, Edinburgh and Belfast from 17 to 26 June 1953.

Of the 347 candidates examined 99 passed as follows:—

Passed Whole Examination	79
Passed Part 1 only	19
Passed Part 2 only	1
	99

248 candidates were relegated.

The successful candidates are as follows:—

Whole Examination

Almond: G. C.
Bentley: Harry
Blakely: S. A.
Bovingdon: L. R.
Bowdon: Robert
Brady: L. H.
Burnhill: C. S.
Buttall: A. F.
Clark: D. J.
Coakham: G. D. G.
Collins: G. J.
Cook: W. H.
Coombe: A. A.
Cornfield: D. G.
Cox: W. A. A.
Devine: E. A.
Diaz: Amador
Dunnington: C. W.
Eeles: I. J. N.
Fagg: A. J.
Fleming: John
Ford: F. H.
Ford: W. A.
Garde: R. C. R.
Gledhill: J. M.
Gowers: C. A. B.
Gray: William
Gulwell: Wallace
Gunzburg: Anna (Mrs.)
Hay: C. D.
Heller: Joseph
Henry: J. V.
Herd: R. D.
Hill: T. C.
Hitch: J. S.
Hubbard: V. A. S.
Hudson: A. C. C.
Hunter: Leslie
Hyslop: William
Ivens: R. J.
Johnson: C. A. H.
Keatley: R. A.
Keen: Russell
King: R. P.
King: R. R. P.
Kruchek: F. M.
Little: C. L.
Lucas: P. R.
McLeod: D. A. G.
MacManus: O. P.
Mallett: A. E. L.
Margerrison: Ronald
Marner: D. L. S. D.
Matthewson: A. J.
Millar: S. T.
Mudd: B. A.
Nelson: Richard
Newman: D. S.
Nicholas: V. A.
O'Rourke: John
Parker: Gerald
Parry: A. R.
Rogers: H. C.
Sammut: Marcel
Sears: R. W.
Sewell: A. F.
Shailer: P. F.
Shoolbred: A. H.
Steadman: S. E.
Thulborn: A. R.
Vardy: R. R.
Vaughan: P. W. F.
Venables: E. L.
Vickers: K. H.
Ward: J. E.
Weatherill: L. W.
Wicks: G. P.
Wilson: R. J. A.
Wood: K. B.

Part 1 *only*

Allen: J. C.
Bourne: Ronald
Brown: David
Day: H. F.
Eaude: Richard
Fielding: M. L.
Gammans: H. C.
Hunter: K. W. T.
Jeffery: E. C.
Jones: Malcolm W.
Miles: G. F.
Simmonds: D. C.
Skorupinski: B. K.
Sparkes: E. A. W.
Stevenson: I. P.
Stubbs: P. A.
Swann: V. Z.
Townsend: Sydney
Ward: Leonard

Part 2 *only*

Jones: John N.

The following candidates have also passed the Special Final Examination:—

Hurley: L. A.
Roberts: Norman

Rome Scholarship. The Faculty of Architecture of the British School at Rome regret to announce that they have been unable to recommend any candidate for the award of the Rome Scholarship in 1953.

ALLIED SOCIETIES

Changes of Officers and Addresses

Devon and Cornwall Society of Architects. The address of the Hon. Secretary, W. Martin Fleet, has been changed to 51 Hyde Road, Paignton. The telephone number remains the same—Paignton 57733.

Northamptonshire, Bedfordshire and Huntingdonshire Association of Architects. President, K. A. Milner [*L*]. *Northamptonshire Branch:* Chairman, A. W. Wilson [*F*]. *Bedfordshire Branch:* Chairman, J. A. Claydon [*A*].

Suffolk Association of Architects. President, B. W. J. Olley [*A*].

York and East Yorkshire Architectural Society. The York and East Yorkshire Architectural Society intend to perpetuate the memory of the late George Dudley Harbron [*F*], whose death occurred on 12 April last, and whose obituary notice appears elsewhere in this issue.

It is proposed that the memorial shall take the form of a bronze portrait medallion, to be awarded annually in competition, open to all students of architecture within the area of the Society. This proposal will require a sum of approximately £300.

No doubt many associates and former pupils acquainted with the late Dudley Harbron will desire to contribute to a fund which has been opened for this purpose by the President of the York and East Yorkshire Architectural Society, Allanson Hick [*F*], 4 Bond Street, Hull; by whom all contributions, however small, will be personally acknowledged.

Northamptonshire, Bedfordshire and Huntingdonshire Association of Architects. At the Annual General Meeting of this Association which was held on 5 June the following donations were made: Architects' Benevolent Society 20 guineas; R.I.B.A. Maintenance Scholarship Fund 3 guineas; Council for the Preservation of Rural England 1 guinea; Georgian Group 1 guinea.

The Hampshire and Isle of Wight Architectural Association: Annual Outing. The annual outing of the Hampshire and Isle of Wight Architectural Association was held on 20 June when a visit was paid to the manor-houses and other places of architectural interest in the Isle of Wight. Members of the Association and their friends, comprising a company of 90, travelled from Southsea, Southampton and Lymington and were met by coaches at Ryde, Cowes and Yarmouth and taken to the Gloster Hotel, Cowes, where they were joined by the Members of the Isle of Wight Chapter. Here after coffee and biscuits the party thoroughly enjoyed a short talk entitled 'Cowes and its Royal Associations' given by Mr. Frank Beken, F.R.P.S. The talk was rendered the more interesting by an exhibition of really first class marine photographs from the earliest yacht down to the modern liner.

A tour of the Island included Shalfleet Church, Mr. V. C. Launder [*A*] giving details of its history and restoration. The George Hotel, Yarmouth, was the lunch venue, where Mr. Uffa Fox, the noted yachtsman and author, delighted the party with an exhilarating talk on yachts and architecture. He had sailed to Yarmouth in H.R.H. The Duke of Edinburgh's yacht *Coweslip*, and after lunch the party inspected this 'flying fifteen' before leaving for the manor-house and church at Mottistone, and then on through Ventnor to Shanklin for tea. After tea the manor, church and tithe barn at Arreton and also Carisbrooke Castle were visited, the party being conducted round the latter by the Curator, Mr. J. Bartlett.

From Carisbrooke the party dispersed to their various points of departure for the mainland.

GENERAL NOTES

R.I.B.A. Golfing Society. The annual match against the London Master Builders' Association was played at West Hill on Tuesday 16 June. Foursomes were played in the morning and at lunch time the architects led by six matches to three. In the afternoon, matches were rearranged and four balls were played and the builders staged a recovery. However, on the day the architects won by 9 matches to 8.

The annual summer meeting was held at Royal Cinque Ports Golf Club, Deal, at the week-end 27–28 June, in splendid weather. On Saturday the Allensby bowl was won by R. G. Scott, playing off a handicap of 4, with the excellent score of 36 points. Runner up was W. R. F. Fisher with 29 points. In the afternoon the fourball competition was won by R. G.

Scott and E. H. Firmin with a score of 40 points. On Sunday the Captain's prize, medal competition, was won by John Grey with a score of 82 minus 9—73: a very popular win by a founder member, who said the cup had been eluding him for 30 years. The winner of the President's prize, Stapleford competition, was W. R. F. Fisher with a score of 33½ points.

The annual match against the Royal Institution of Chartered Surveyors was played on Tuesday 16 July at New Zealand Golf Club, West Byfleet. The architects won the singles by the odd match in the morning and succeeded in repeating the performance in the afternoon, and thus became the winners on the day by two matches.

R.I.B.A. Cricket Club. R.I.B.A. *v.* **A.A., Boreham Wood, 24 June 1953.**

A.A.

Howard, b. Norton	4	
Colleymore, b. Bynoe	13	
Gunesakara, run out	22	
Andrews, run out	3	
Ringshall, l.b.w. Batty	9	
Selvaratnam, st. Brock, b. Batty	6	
Case, l.b.w. Batty	21	
Roberts, st. Brock, b. Norton	10	
Iliffe, not out	2	
Stuckey, c. Batty, b. Norton	0	
Steel, b. Batty	0	
Extras	5	
	95	all out

R.I.B.A.

Batty, b. Case	41	
Taylor, b. Case	8	
Smyth, b. Case	6	
Westwood, c. Collymore, b. Ringshall	2	
Brock, b. Case	1	
Bynoe, b. Case	25	
Bishop, not out	6	
Norton, not out	7	
Le Fevre, did not bat		
Winton Lewis, did not bat		
Linfield, did not bat		
Extras	1	
	97	for 6

Ringshall—1 for 29.	Norton—3 for 18.
Case—5 for 35.	Smyth—0 for 19.
Iliffe—0 for 22.	Bynoe—1 for 24.
Steel—0 for 10.	Batty—4 for 29.

The game was played on the A.A. ground in the usual fine weather for this fixture, and resulted in a good win for the R.I.B.A., who passed the A.A. score for 6 wickets down. J. G. Batty (41 and 4 for 29) was the outstanding player for the R.I.B.A., with able assistance from P. Bynoe (25) and C. Norton (3 for 18).

Obituaries

George Dudley Harbron [*F*], past President of the York and East Yorkshire Architectural Society, died on 12 April, aged 72.

Mr. Harbron was born in Hull in 1881 and practised there until the day of his death. He was the grandson of a professional ceiling painter. He had early wanted to be an officer in the Royal Navy, but finding himself too old to enter a naval college he became apprenticed to a firm of marine engineers. It was not long, however, before a 'feeling of incapacity' made him take the plunge into another profession and 'with very little idea of what the word implied' he decided to become an architect, and signed fresh articles with Smith, Brodrick & Lowther in Hull. After completing his apprenticeship he went to London to join the staff of the late H. M. Fletcher [*F*], whose right-hand man he eventually became.

Whilst in London Mr. Harbron continued his studies at King's College and at the Architectural Association and meanwhile found time to write articles for PUNCH and THE WESTMINSTER GAZETTE.

In 1905 Mr. Harbron returned to Hull and set up on his own account. He built up a practice which, while never large, was varied and included private houses, shops, factories, banks, warehouses, breweries, hotels and public houses. At the time of his death he was engaged on Roman Catholic work which included a number of schools and a church group on a new housing estate. He was in partnership before and after the first world war with Frederick Robson [*L*] and from 1929–49 with Allanson Hick [*F*].

From 1915–19 Mr. Harbron served first with the 9th Durham Light Infantry, and later as Commandant 109 P.O.W. Coy. In 1939, at the age of 58, he again volunteered, but much to his disgust was placed in a reserved category.

Mr. Harbron was President of the York and East Yorks Architectural Society in 1929 when the British Architects' Conference was held at York. More recently he was instrumental in the formation of the Hull Chapter.

His interests in the allied arts were intensely varied. He was a member from its inception of the Hull Citizens' Arts League, and was on the executive council of the Georgian Society for East Yorkshire. He was a former President of the Hull Literary Club and Chairman of the Hull Art Club, at whose shows he was a regular exhibitor. One of his water colours was purchased by the Hull Corporation for the city's permanent collection. His reading was wide and his memory prodigious, aided by his habit of recording incidents and conversations. His knowledge of local history was unrivalled, and during later years he delved deeply into the country lore of Flamborough and of Rosedale, where also many of his inimitable water colours were done.

All his life he had a constant urge to write, and he contributed many articles at one time or another to THE BUILDER, ARCHITECTURE, THE ARCHITECTURAL REVIEW and other architectural and lay publications. His first published book was a collection of poems under the title *Swan Songs*, written during the first world war. In *Amphion*, published in 1930, he dealt historically with 19th-century architecture, and he followed this in 1949 with *The Conscious Stone*, a biography of E. W. Godwin.

Mr. Harbron was a member of the Masonic Fraternity. His main interest was in the Mark Degree (No. 12) of which he had been a member for 38 years and Secretary for 30 years. He was an authority on the history and working of this very old Mark Lodge.

Mr. Harbron was a lecturer at the Hull School of Architecture from its earliest days, and all who attended his classes in Design, History and Professional Practice will recall his benevolent methods of instruction, his vast store of reminiscence and his never-failing readiness, in school or out, to give up his time to help, advise and exhort. Nor did his interest cease with the end of term or the passing of examinations. His office was a frequent port of call for ex-students and many of them were his regular correspondents. He became a sort of unofficial consultant, not only for students but also for fellow architects, who almost automatically sought his advice, particularly in matters of arbitration and litigation, and his keenly analytic mind made light of knotty problems. He will be sadly missed by all who knew him.

James Macgregor, F.S.A. [*F*], Director of the Department of Architecture at Cambridge University, died on 18 March, aged 64.

Mr. Macgregor studied at the School of Architecture, Edinburgh College of Art, and at the Heriot-Watt College, Edinburgh, and was afterwards with Messrs. Williamson & Inglis, Kirkcaldy, and with Mr. Hippolyte J. Blanc and Sir Edwin Lutyens. He was for some years in private practice, then in 1921 was appointed senior master in design and lecturer in mediaeval architecture at the School of Architecture, Victoria University, Manchester. In 1926 he joined the Architectural Association staff as studio master and remained there for seven years, during several of which he was in charge of the Third Year. A tribute from the A.A. when he left there in 1933 to take up the post of head of the School of Architecture, Edinburgh College of Art, described him as 'a teacher of a high order, with direct views, a clear-headed and competent manner which instils confidence, an enviable capacity as a draughtsman and an equable temperament'. It was also recorded that he showed great interest in the general life of the school and was always ready to assist with advice or practical help. Mr. Macgregor remained at Edinburgh until he went to Cambridge in 1936.

He was Pugin Student 1912 and was awarded the R.I.B.A. Distinction in Town Planning. He was a past member of the Board of Architectural Education and of the Schools Committee.

Archibald Hurley Robinson [*F*] died on 24 February, aged 70.

Mr. Robinson served his articles with Messrs. Floyd & Salt, Birmingham, attending the Birmingham School of Architecture in the evenings. He started in personal practice in 1906. His principal works consist of the Kent Street swimming baths and the Sparkhill baths, Birmingham; Dudley Hippodrome; the Masonic Temple in Francis Road, Birmingham, and about sixty cinemas in various parts of the country.

His son, Mr. Keith Douglas Hurley Robinson [*A*], who became a partner in 1945, carries on the practice.

William Alfred Nash [*L*] died in June 1952, aged 71.

Mr. Nash served his articles with Messrs. Holman & Goodrham, of King's Bench Walk, and practised throughout his career in London; for a time, on completing his articles, he was in partnership with Mr. Goodrham, and after Mr. Goodrham's death he carried on alone. His work consisted principally of industrial buildings. He built much of Cadby Hall and the Greenford factories of Messrs. J. Lyons & Co. Ltd., factories and office buildings for Messrs. Allen & Hanburys Ltd., Excel Co. Ltd., and Huntley & Palmers Ltd.

Cecil Broadbent Metcalfe [*F*] died on 15 March, aged 68.

After serving his articles with Messrs. W. J. Morley & Sons, Bradford, Mr. Metcalfe spent the greater part of his career in local authority service, being an architectural assistant successively to Derby County Education Committee, to the Borough of Burnley, to Wiltshire and Caernarvonshire County Councils and finally County Architect to Kesteven County Council. He went into private practice on his retirement in 1950. Apart from the numerous schools for which he was responsible in Derbyshire, Mr. Metcalfe's work was largely in connection with smallholdings development.

Carl Brummer [*H.C.M., Denmark*] died on 14 February, in his ninetieth year.

After attending technical school Brummer began life as a carpenter, but in 1896 qualified as an architect at the Royal Academy of Art. In 1905 he won second place, together with V. J. Morkhansen, in a competition for the design of the Parliament building, Christiansborg Palace, and from then on he won honours in a number of countries besides his own—in 1914 the Gold Medal at Leipzig, in 1921 the Grand Prix at Ghent, and many others. In his native country he restored a number of churches, built the *Gurre kirke* and a number of 'villas', including the Simonsens villa, the Unitarian church house, Osterbrogade, the State Gymnastic Institute, various commercial buildings in Copenhagen and war memorials throughout the country after the first world war. He was also responsible for the Jubilee Exhibition in the Royal Academy of Art, Copenhagen, in 1944. In Belgium he built the sailors' home in Ghent and the consulate building. He also built a house in Frohnau, near Berlin, and at the *Biennale* in Venice he was responsible for the Danish pavilion.

Mr. Brummer's autobiography, *Men, Houses and Dogs* (in the original), is in the R.I.B.A. library.

Archie Bayley [*L*] died on 21 March, after a short illness, at the early age of 47.

At the age of 14 Archie Bayley won a scholarship to Walsall School of Art, where he studied until he was 18. He afterwards served his articles with Messrs. Jeffries & Shipley, Walsall, with whom he remained as assistant until 1945, when he started his own practice. His great interest was in dwelling-houses for the average person, and his great preoccupation to make each new design different from its predecessor, bearing equally in mind both artistic and practical requirements.

George Howard Jones, M.C., I.S.O. [*A*], died on 4 March, aged 68. Mr. R. Turner [*L*], Assistant Chief Architect, Ministry of Works, contributes the following notes:

'Howard Jones entered the old Office of Works in 1906. I understand he volunteered and served through the whole period of the 1914–18 war and was gazetted a 2nd Lieutenant in the 3rd Battalion of the Welch Regiment on 16 March 1915. He received the Military Cross in January 1916 and was five times mentioned in despatches in 1917. On 24 May 1917 he was appointed a Staff Captain and was also awarded the Croix de Guerre. In 1919 he returned to the Department and was promoted to the rank of Assistant Architect. From then on and until his retirement in April 1948 he was attached to what was formerly known as the Diplomatic and Consular Section and is now referred to as the Public Buildings Overseas Branch.

'From 1936 he was head of the Overseas Section and when he retired in 1948 he had reached the rank of Superintending Architect. His responsibilities covered a wide field, ranging from the Far East to the Americas, and in fact his parish was the world. He travelled many thousands of miles in the service of the Department under the most primitive and difficult conditions, and his knowledge of the requirements and conditions in the various countries was of immense value to the Department. In all he completed 42 years' service, and during this period he took a major part in the design and erection of a number of buildings, the more important being the embassies in Ankara and Tokyo, the legations in Belgrade and Stockholm, the consulate general at Fez in North Africa and the Loanda consulate in Portuguese West Africa; also buildings in Addis Ababa in Abyssinia.

'In addition, Howard Jones was responsible for the care and upkeep of the majority of Foreign Office missions overseas, the more notable of these being Washington, Paris, Rome, Madrid, Lisbon, Cairo, Istanbul, Shanghai, Peking and Bangkok. After the second world war he took a major part in the setting up of new missions for the Commonwealth Relations Department in India, Pakistan, Burma and Ceylon, also in Singapore for the Foreign Office. The rehabilitation and reinstatement of Foreign Office missions damaged in Europe as the result of hostilities came within his province too.

'When he retired those of his colleagues still dealing with overseas work felt they had lost a good friend and a source of information which never failed.'

Alfred Georges Roberts [*A*] died on 19 January. Ronald Ward [*F*] writes:

'The news of the sudden death of A. G. Roberts came as a sad shock to his many friends in the profession. He and I met as members of the London County Council staff in 1930, and subsequently we went together to the Surrey County Council in 1931. Although we parted company in 1933, we remained friends until the end.

'A. G. or Robbie, as he was known to his friends, was of a retiring nature. Though he had an independent mind, strong opinions and ideas he seldom expressed himself except to his friends.

'In 1918, at the age of 18, he was a captain in the army in France. He became an Associate of the Royal Institute in 1926, and was Senior Architectural Assistant on the staff of the L.C.C. from 1931 until 1948, when he was appointed Regional Architect to the South-west Metropolitan Regional Hospital Board.'

David Alexander Adam (*L*) died on 11 January. He was 71 years of age.

Mr. Adam served his articles with a Newcastle upon Tyne firm, and studied architecture in the evenings at what is now the University of Durham. From 1909 to 1927 Mr. Adam was chief assistant to the late Mr. J. S. Stout (*L*), whose death was reported in the JOURNAL for October 1951. Mr. Stout's practice was in Whitehaven, Cumberland. In 1927 Mr. Adam went to John Laing and Son Ltd., at Mill Hill, London, as their Chief Staff Architect. He remained with the firm, with one short break, until a few months before his death, though from 1948 onwards in a part-time capacity only.

While with Messrs. John Laing, Mr. Adam worked chiefly on housing. During recent years he was active in the discussions among the Phoenix group which resulted in the Phoenix house. In the war he carried out much investigation into materials and prototypes for military hutting, and the design of shuttering for Mulberry Harbour units was carried out in his office.

Morris Joseph, F.R.I.C.S. [*F*] died on 7 December 1952, aged only 44.

Mr. Joseph, who trained at the Northern Polytechnic, started in practice in 1933 in Bloomsbury, London. In 1946 he entered into partnership with Mr. Digby L. Solomon [*F*] and Mr. M. N. Castello [*F*]. Mr. Sidney Kaye [*A*] joined the partnership in 1951.

The principal architectural works with which Mr. Joseph was associated are St. Giles' Court and Castlewood House, both in Bloomsbury; King's Keep, Kingston-on-Thames; Streatham Crematorium; L.C.C. flats at Buckland Street, Shoreditch; a number of aerodromes for the Air Ministry during the war (including Aldermaston Aerodrome) and various synagogues.

Samuel Grant Alexander, M.B.E. [*F*] died suddenly at his home at Asheville, North Carolina, on 20 January, two days before his 78th birthday.

Although born in Inverness, his roots were in Morayshire, and his student days were passed a great deal in browsing and measuring the old cathedral, priories, abbeys and ancient buildings in and around Elgin. His great-grandfather had owned and farmed the lands of the picturesque Coxton Tower and his family history is to be found in Shaw's *History of the Province of Moray*.

Mr. Alexander was for many years in partnership with the late W. L. Carruthers [*F*] in Inverness. Together they carried out half a street in Queensgate and the Royal Bank of Scotland Building, additions to Moy Hall and the restoration of Dalcross Castle for the late Mackintosh of Mackintosh. For a short while after Mr. Carruthers' death his elder son joined the partnership, but on his leaving to join the army in the first world war Mr. Alexander became principal of the firm. He carried out several conversions—Leys Castle into a hospital, Hedgefield House into a hospital for convalescent soldiers, the Northern Meeting Ball Rooms into a Y.M.C.A. centre for the American naval men based in northern waters. He also made complicated additions to Belladrum House, Beauly, raising the roof without damage or cracks to a very beautiful painted ceiling in the drawing-rooms. He was also associated with work at Pitmains, Kingussie, which was built of red brick brought from England, with stone trim corners and entrances. The staircase was an adapted copy of a staircase in the house of Cecil Rhodes in Africa. His work was extensive and varied from Edinburgh and Perth to Skye and the outer Hebrides.

A few years after the first world war Mr. Alexander went to the United States. Here he built up an extensive practice in Asheville, North Carolina. Later he was joined by his son, Mr. Ludovic J. Grant Alexander [*L*], and together they designed many churches, schools, country clubs, nurses' home, shops, garages, hotels and apartment houses.

Mr. Alexander was throughout his life a student of heraldry. Before going to the States he was Hon. Secretary and Treasurer for the Scottish branch of the British Red Cross Society and a J.P. for Inverness-shire. In his early days he taught in the art school in Inverness and he was until his death a member of the Chelsea Arts Club and of the Highland Club, Inverness. He remained a British subject. He was cremated and his ashes taken back to Scotland for burial.

Frederick Candelent Wilson [*Retd. F*] died on 18 January, aged 67.

Mr. Wilson served his articles with Messrs. Essex, Nicol and Goodman, Birmingham, from 1903 to 1908, and then went to Salisbury, Rhodesia, where he took up private practice. He subsequently practised both in Port Elizabeth and Capetown. From 1914 to 1920 he served with the R.E. Shortly after the first world war he took up an architectural post with the South Indian Railway, remaining with them until 1939. From then until 1946 he again served with the R.E., then returned to England and to private practice in Buxted, Sussex, until his death.

Alfred Douglas Sayers [*F*] died on 9 February, aged 59.

Mr. Sayers studied architecture at Putney School of Art and the Bartlett School of

Architecture, and served his articles with Mr. Reginald Rowell [*A*], at East Sheen. Mr. Sayers then entered local authority service, and was assistant architect to Wimbledon Borough Council 1912–1925, to Slough Borough Council 1925–1945, and Chief Assistant Architect to Croydon County Borough Council 1945–1953. As such Mr. Sayers was concerned with the usual wide range of work of a local authority architect—fire stations, British restaurants, waterworks, a model farm dairy, swimming baths, schools and houses. He was always in close touch with town planning development and an enthusiast about landscape architecture. He served on the R.I.B.A. Council and as Hon. Treasurer of the Berks, Bucks and Oxon Society of Architects.

Thomas Henson Robinson [*F*] died on 10 February, aged 76.

Mr. Robinson trained with Messrs. Gibbs & Flockton [*FF*] of Sheffield. He was at the Admiralty during the first world war and in the Sheffield City Architect's Department for a number of years until beginning practice some years ago on his own account. He was responsible for factories, houses, offices and licensed premises in the Sheffield region. He was a keen sportsman and a member of the Yorks County Cricket Club.

John Wellwood Manson [*L*] died on 11 October 1952. Mr. Manson was 50 years of age.

He studied at Glasgow School of Art and the Royal Technical College, Glasgow, and trained with Mr. G. A. Boswell, Glasgow. He was for many years chief assistant to Mr. James Miller, R.S.A., and as such was associated with the designing of the Belfast B.B.C. building, which was carried out by Mr. Miller in association with the B.B.C. Civil Engineer and with the Commercial Bank of Scotland Limited, Glasgow.

In 1941, when Mr. James Miller retired, Mr. Manson took over the practice, carrying out alterations and extensions, notably to Stevenage Royal Infirmary, the Commercial College, Glasgow, and Rosshall School of Hotel Management.

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. Ralph I'A. Bloomfield, A.R.A.I.A. [*A*] has left London to take up an appointment as Architect to the firm of Woodsons and Partners, Pakistan, P.O. Box 4470, Karachi 2, and will be pleased to receive trade data, catalogues, etc., at that address.

Mr. Aneurin John, Dip. Arch. (Cardiff), S.P.Dip., A.M.T.P.I. [*A*], has been appointed Deputy Architect to the Central Electricity Board, Kuala Lumpur, Malaya, on a three-year contract. He will be pleased to receive any communications at this address.

Mr. E. W. MacDonald, B.Arch., Dip. C.D. (L'pool), A.M.T.P.I. [*A*], has taken up a post as Senior Assistant Architect to the Northern Ireland Housing Trust.

PRACTICES AND PARTNERSHIPS

Messrs. Blackburne, Norburn and Partners [*F*/*A*] of Nairobi, Dar-es-Salaam and Kampala, have taken into partnership from 1 July 1953 **Mr. J. Austen Woodgate,** O.B.E. [*A*], of Kampala. The firm will practise in Uganda under the style of **Messrs. Blackburne, Norburn and Woodgate** and the Kampala address will remain as before, namely 7–11 Georgiadis Building, Kampala Road, P.O. Box 916, Kampala (Kampala 2543).

Mr. A. O. Cole [*A*] has taken into partnership **Mr. E. M. Bailie** [*A*]. The practice will continue under the style of **Cole and Bailie** from 85 Regent Street, Cambridge.

Mr. George C. Fox [*L*] has entered into partnership with **Mr. W. H. Scanlan,** F.R.I.C.S., and **Mr. S. D. Graves,** F.R.I.C.S. (formerly Chas. V. Stevens and Co., Chartered Surveyors). The firm will in future practise under the title of **Stevens, Scanlan and Co.,** Architects and Surveyors, at 56 Buckingham Gate, S.W.1 (VICtoria 4806).

The partnership hitherto existing between **Mr. E. F. Tew** [*F*], **Mr. P. K. Pope** [*A*] and **Mr. D. W. Oliver** [*A*] has been dissolved. **Mr. E. F. Tew** is continuing to practise at 7 Northumberland Buildings, Bath (Bath 60463). **Mr. Paul Kennerell Pope** is practising independently at 18 Brock Street, Bath (Bath 60458), where he will be in association with Messrs. Snailum, Huggins and Le Fevre [*F*/*AA*].

CHANGES OF ADDRESS

Mr. C. G. Boutcher [*F*], of 19 Beach Street, Penang, is in England until November. His home address is: York House, Lower Frog Street, Tenby, Pembrokeshire, South Wales.

Mr. E. R. Collister, A.A. Dipl. [*A*], of 67 London Road, Chelmsford, and 4A Market Street, Cambridge, has opened an office at Gloucester House, Trafalgar Square, 19 Charing Cross Road, W.C.2, where he will be pleased to receive trade catalogues, etc.

Mr. Percy R. Fincher [*F*] has changed his address to 77 Ennismore Gardens, Southend-on-Sea, Essex.

Messrs. T. A. Fitton and Son (Mr. E. Hamilton Thompson [*A*]) have removed from 7 Chapel Walks, Manchester 2, to 4 Chapel Walks, Manchester 2. The telephone number (Blackfriars 9930) remains unchanged.

Mr. M. J. Hislop [*A*] has removed to No. 39 Palace Court, London, W.2.

Miss Margaret McL. Little [*A*] has changed her private address to 26 Muirton Place, Perth, Scotland.

Mr. N. Gunn Robinson, Dip. Arch. (L'pool) [*A*] has changed his address from 88 Argyle Street, Birkenhead, to 19 Hamilton Square, Birkenhead, and will be pleased to receive trade catalogues, etc. The telephone number remains the same (Birkenhead 5933).

Mr. Donald Stockley, Dip. Arch. (Sheffield) [*A*] has removed to 334 Selly Oak Road, King's Norton, Birmingham 30.

Mr. G. D. Tench [*A*] is now at 6 Frank Street, Ottawa, Ontario, Canada.

Messrs. T. H. Thorpe and Partners [*F*/*A*] have removed from 23 St. James' Street to 41 Friar Gate, Derby.

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Associate, present appointment assistant with local authority, eleven years' experience in private practice, requires position as senior assistant with view to partnership in York-Scarborough area. Some capital available. Box 62, c/o Secretary, R.I.B.A.

Partnership desired by Associate, in the South Wales or Hereford areas. Capital available. Sound knowledge of private practice and also experienced quantity surveyor. Some business contacts. Box 63, c/o Secretary, R.I.B.A.

Associate desires position with view to early partnership in Cornwall. Managerial and general experience. Capital available. Box 64, c/o Secretary, R.I.B.A.

Associate, 40, school trained, with good varied experience, seeks partnership in established practice on Merseyside. Some capital available. Box 66, c/o Secretary, R.I.B.A.

Associate, 38 years old, articled pupil and school trained, requires position leading to partnership. Somerset or Devon preferred. Capital available. Box 67, c/o Secretary, R.I.B.A.

Associate (34) with eighteen years' experience of varied work desires a position of responsibility leading to a junior partnership in Home Counties or London area. Some capital available. Box 70, c/o Secretary, R.I.B.A.

FOR SALE AND WANTED

For disposal. Two double elephant drawing boards and trestles. Box 61, c/o Secretary, R.I.B.A.

Wanted. D.E. plan chest and vertical filing cabinets. Box 65, c/o Secretary, R.I.B.A.

Wanted. Theodolite in good condition. Please send particulars and price to Box 68, c/o Secretary, R.I.B.A.

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The Architect, like other professional men, incurs certain responsibilities in the course of his work. Mistakes occur in even the most carefully conducted practice, and the Architect may find himself liable for substantial damages which he can ill afford to meet.

Professional Indemnity Insurance is designed to give cover against all claims arising from acts of neglect, omission or error arising out of the conduct of the assured's profession, and arrangements have been made by which the maximum cover may be obtained at reasonable cost.

Particulars from:

The Secretary, A.B.S. Insurance Department, 66, Portland Place, London, W.1. (Tel: LANgham 5721)